Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	
ETC Annual Reports and Certifications	)	WC Docket No. 14-58
	)	
Establishing Just and Reasonable Rates for Local Exchange Carriers	)	WC Docket No. 07-135
	)	
Developing a Unified Intercarrier Compensation Regime	)	CC Docket No. 01-92
	)	

REPLY COMMENTS OF NTCA–THE RURAL BROADBAND ASSOCIATION

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EXECUTIVE SUMMARY

Any effort to set appropriate budgets for federal universal service fund ("USF") programs must start from the law. Section 254 of the Communications Act of 1934, as amended, calls upon the Federal Communications Commission (the "Commission") to ensure, among other things, that: (a) quality services should be available at just, reasonable, and affordable rates; (b) services shall be reasonably comparable in price and quality as between urban and rural areas; and (c) USF support shall be predictable and sufficient.

The comments filed in this proceeding confirm that the current high-cost USF budget, which is based primarily upon what was deemed necessary to support telephone service offered by rural local exchange carriers ("RLECs") prior to intercarrier compensation changes, falls short. The record indicates that a 2011-era budget creates regulatory uncertainty, deters broadband investment by RLECs, fails to keep pace with substantially reformed requirements and program mandates, and results in rural Americans paying the price in the form of lower speeds and higher rates for broadband. Commenters further describe how support capped at levels from nearly a decade ago, without even an inflationary adjustment, flies in the face of expanding duties to deploy broadband and increasing costs to do so.

There is consensus, therefore, that the Commission should take steps, much as it has in the context of other federal USF programs, to right-size the budget for the tasks assigned and the challenges faced. The comments further reflect striking agreement on the amounts needed to provide sufficient support via the RLEC USF programs now and over the next eight-plus years – amounts that, while estimated on a "bottoms-up" basis, turn out to be roughly equivalent to an inflationary-based "recalibration" of the total RLEC USF budget dating back to 2011 and then the application of an inflationary factor to that adjusted amount going forward. (Although NTCA submits that the Commission should apply an inflationary factor based upon the *overall* high-cost

USF budget – just as it has for other USF programs – to help pay for RLEC USF program demands *and* other high-cost USF priorities such as mobility funding, remote area needs, and disaster recovery. NTCA further submits that the inflationary factor should reflect the labor-driven nature of network deployment costs.) There is also significant support in the record for a carrier-specific threshold of support, or floor, that would provide greater predictability consistent with the statute. It is important, however, that this floor be set at a reasonable level; if set too low as some suggest, the "predictability" that comes in the form of dramatically reduced support will in fact do very little to promote broadband investment in long-term network assets.

In addition to the substantial agreement around the budgetary questions that are the primary focus of the instant proceeding, the record reflects considerable consensus with respect to other potential reforms. For example, nearly every party recommends that the Commission decline to modify the workings of the budget control mechanism, noting the balance struck by the current mechanism and observing that any change would serve only to harm one type of carrier over another. Likewise, nearly every commenter opposes lowering the per-location cap on cost-based USF support or the percentage at which competitive overlap is determined on a study area basis; those few that favor such changes offer no principled reasons or legal or factual basis for doing so beyond a transparent desire to reduce USF funding without reference to what is necessary or sufficient. Meanwhile, the record reflects universal opposition to vouchers or means-testing because of the deterrent impact they would have on investment in broadband networks that span throughout rural America. Finally, several parties join NTCA in supporting changes to the capital investment allowance and certain accounting standards, and NTCA also continues to welcome the opportunity for a conversation with the Commission regarding whether modifications to the standalone broadband support calculation adopted in 2016 would improve its effectiveness and long-term viability.

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REPLY COMMENTS OF
NTCA–THE RURAL BROADBAND ASSOCIATION

NTCA–The Rural Broadband Association ("NTCA") hereby submits these Reply Comments in response to the Notice of Proposed Rulemaking[1] in the above-captioned proceeding. The comments filed in this proceeding indicate consistent, data-driven concerns regarding the insufficiency of USF support budgets for small rural local exchange carriers ("RLECs") receiving support based upon actual costs of rural investments and operations through Connect America Fund-Broadband Loop Support ("CAF-BLS") and High-Cost Loop Support ("HCLS") (collectively, "Cost-Based Support") and also via distributions from the Alternative Connect America Cost Model ("A-CAM"). These comments confirm that a federal universal service fund ("USF") budget designed and effectively capped in 2011 has generated substantial regulatory uncertainty, has deterred broadband investment, has failed to keep pace with substantially reformed program requirements and demands in today's broadband world – and has resulted in rural Americans ultimately paying the price in the form of lower speeds and higher rates for

[1] *Connect America Fund*, *et al.*, WC Docket No. 10-90, *et al*., Report and Order, Third Order on Reconsideration, and Notice of Proposed Rulemaking (rel. March 23, 2018) ("Order" or "NPRM," as applicable).

broadband than their urban counterparts. These outcomes undermine, if not defeat, the very purpose of prior reforms, and contravene the universal service mandates set forth in federal law. There is ample evidence and justification for the Federal Communications Commission (the "Commission") to act now to provide more sufficient and predictable USF support as both a near-term measure and over the longer-run to advance and achieve the fundamental objectives of universal service.

I. THE RECORD DEMONSTRATES THAT A 2011-BASED LEVEL OF SUPPORT FOR HIGH-COST UNIVERSAL SERVICE IS INSUFFICIENT AND IS HARMING RURAL AMERICANS' ABILITY TO PARTICIPATE EFFECTIVELY IN TODAY'S EVOLVING AND DYNAMIC BROADBAND WORLD.

A. The 2011-Era High-Cost USF Budget is Stifling Rural Infrastructure Investment, Hindering Achievement of Broadband Goals, and Denying "Reasonable Comparability" for Rural Consumers.

NTCA's initial comments provided a detailed overview of marketplace trends with respect to the broadband services that have become essential for consumers and businesses in the 21st century. In particular, NTCA highlighted the astounding increases in average broadband speeds over the past decade as measured in Commission data, NTCA's own member data, and industry reports,[2] as well the substantial growth in consumer and business demands for everything from more robust mobile data services (and backhaul) to telehealth, distance learning, video surveillance, high-definition entertainment, and other streaming services.[3] Unfortunately, as NTCA explained, insufficient and artificially constrained USF budgets based arbitrarily upon 2011 "telephone-era" support levels are hindering efforts to keep up with such technological evolution and user demands – with many rural Americans lacking access to even basic levels of broadband and numerous others at risk of falling behind due to increasing prices for broadband that far

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2 NTCA Comments at 2-4 (citations omitted).

3 *Id*. at 4-6 (citations omitted).

outpace urban rates, or deferred or declined investments in network upgrades that will accommodate the increasing demands for higher-capacity services and applications.[4]

Indeed, as NTCA reported, 37 percent of members estimate that their broadband rates will need to be up to $10 per month higher due to the new budget control on Cost-Based Support announced May 1, while another 32 percent of members indicate their rates could be as much as $25 per month higher due to the support cuts.[5] In a similar vein, the new budget control will cause the average NTCA member *each* to defer or decline more than *$1.65 million* in network investments over the next twelve months, denying better broadband to 50 percent or more of consumers who would otherwise have been reached under initial project plans.[6] This impact of "broadband denied" extends of course to model-based support as well, where a lower per-location cap in the face of insufficient A-CAM support is locking 17,700 rural locations in at speeds under 25/3 Mbps, with another nearly 22,000 potential subscribers lacking access to even just the 10/1 Mbps broadband they would otherwise receive.[7]

When the average Internet speeds in the U.S. increased by 22 percent to nearly 19 Mbps in just a single year,[8] and when adoption of 25 Mbps has grown from 10 percent in 2011 to just over 50 percent in 2016 – and when adoption of 50 Mbps has grown from 25 percent in 2014 to nearly

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4 *Id*. at 7-11.

5 *Id*. at 12.

6 *Id*. at 25; *see also* Comments of FWA, Inc. ("FWA"), at 6 (observing declines in investment by firms due to "uncertainty surrounding the availability of" Cost-Based Support).

7 NTCA Comments at 24; *see also* Comments of the Nebraska A-CAM Companies ("Nebraska A-CAM"), at 7 (indicating that additional funding of up to $200 per location would put many A-CAM companies "in a position to develop plans to reach nearly all of their customers with some level of broadband service over a reasonable period of time").

8 NTCA Comments at n.7 (citations omitted).

45 percent just two years later[9] – rural America is at even greater risk of being left behind. A budgetary approach that leads all too often to "broadband denied" cannot hope to deliver on "reasonable comparability" as required by law. And, the longer a 2011 "telephone-era" budget continues to drive universal service decision-making in rural America, the longer it will take to achieve reasonable comparability given the substantial labor-intensive efforts, long timelines, and often-difficult financing procedures associated with seeking to deploy broadband networks in rural areas. Inaction now will simply create a longer, more difficult path toward the future.

Other parties in this proceeding paint a strikingly similar picture of an insufficient USF budget that is hindering (rather than advancing) universal service; failing to achieve "reasonable comparability;" and, poised as a result to put rural America in serious peril of being left behind. USTelecom notes, for example, that "10/1 Mbps and 25/3 Mbps and higher have gone from aspirational, to expected, and in many cases necessary to handle the increases in streaming traffic and consumer demand for more bandwidth."[10] Similarly, ADTRAN – a manufacturer of networking and communications equipment with great insight into market trends – observes, "It no longer makes any sense to subsidize broadband limited to 4/1 Mbps speeds, in light of the significant changes in uses and applications over the last seven years."[11] In addition to the Commission's own acknowledgment to this effect in the NPRM,[12] this sentiment that achievement

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9 *Id*. at notes 9-11 (citations omitted).

10 Comments of the USTelecom Association ("USTelecom"), at 3.

11 Comments of ADTRAN, Inc. ("ADTRAN") at 3.

12 NPRM at ¶ 108.

of "reasonable comparability" is slipping away as investments are declined or deferred is echoed by other commenters.[13]

Moreover, to be clear, this notion of "reasonable comparability" is not limited to measures of speed and network capability alone. As noted above, NTCA members anticipate their rates for broadband are materially higher than they would otherwise need to be in the face of the average 15.5 percent budget cut announced on May 1 – a sadly ironic result when one of the primary drivers of reform in the first instance was escalating concern on the part of members of Congress that rural consumers were unable to obtain access to affordable standalone broadband.[14] Other commenters likewise highlight the prospect of "unreasonably incomparable" rates for rural Americans that fly in the face of the law and goals of reform due to the insufficient USF budget. For example, FWA reports that its telco clients face the prospect of increasing broadband rates "from $11 to over $42 per month to recover the impact of the current budget reductions," and that these current cuts in combination with potential future budget shortfalls "would cause broadband rates to escalate to unaffordable levels for most customers."[15] The Broadband Alliance of the Midwest identifies a similarly troubling dynamic: "Ultimately, these arbitrary, yet quite real reductions caused by the [insufficient budget] are fully-borne by the rural consumer, clearly causing a variance between the comparability of pricing to their urban counterparts."[16]

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13 *See, e.g.*, Comments of WTA-Advocates for Rural Broadband ("WTA"), at 7-8 and 11-12; Comments of the Blooston Rural Carriers ("Blooston"), at 5.

14 *See, e.g., Letter from Rep. Cory Gardner and 88 Representatives to Chairman Tom Wheeler* (dated May 6, 2014); *Letter from Senators John Thune, Amy Klobuchar, and 42 Senators to Chairman Tom Wheeler* (dated May 6, 2014); *Letter from Rep. Kevin Cramer and 114 Representatives to Chairman Tom Wheeler* (dated May 12, 2015); *Letter from Senators John Thune, Amy Klobuchar, and 59 Senators to Chairman Tom Wheeler* (dated May 11, 2015).

15 FWA Comments at 5.

16 Comments of the Broadband Alliance of the Midwest ("BAM"), at 9-10; *see also* Comments of the Concerned Rural LECs, at 9 (reporting an average monthly broadband

The public policy ripple effects of failing to provide sufficient high-cost USF support on other important universal service priorities must also not be missed. As NTCA has stated previously in other contexts, the high-cost USF program is a cornerstone for rural America, providing the networks and "baseline" levels of affordability that are critical for other USF programs to achieve their distinct and separate missions more efficiently and effectively.[17] Thus, as USTelecom rightly comments, "Without the infrastructure provided by the high cost program in rural America all of the other programs such as Lifeline, Schools and Libraries and Rural Healthcare, to name a few, would not be able to meet their intended purpose."[18] This assessment is echoed by others, including TCA: "The [high-cost USF] provides support for infrastructure deployment and operation in the highest cost areas of the country. It is foundational to the success of the mission for USF and all the other programs would not be effective in their goals without the networks supported by [high-cost USF]."[19]

While the record thus reflects substantial and consistent concerns about "reasonable comparability" in terms of the speeds and rates that rural Americans will face under an insufficient

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transmission rate of $74.25, even before arriving at the ultimate retail rate for broadband service, due to budget control impacts).

17 *See, e.g., Ex Parte* Letter from Michael R. Romano, Sr. Vice President, NTCA, to Marlene H. Dortch, Secretary, Commission, WC Docket No. 11-42, *et al*. (filed Oct. 21, 2016), at 1 ("Indeed, as shown in NTCA's petition, the evidence in the high-cost proceeding is that, even in the wake of high-cost program reforms, consumers in the relatively lowest-cost areas served by rural local exchange carriers will likely face retail standalone broadband rates of almost $90 per month on average – $15 per month higher than the current "reasonable comparability" benchmark and $30 per month higher than the average urban consumer rate for comparable broadband service. NTCA noted that applying a Lifeline discount to 'baseline rates' that are so much higher to start than those available in urban areas will likely do little, if anything, to encourage and sustain adoption by rural low-income consumers.")

18 USTelecom Comments at 3.

19 Comments of TCA Consulting ("TCA"), at 2; *see also* BAM Comments at 10 and Comments of ITTA-The Voice of America's Broadband Providers ("ITTA"), at 4-5.

USF budget – as well as concerns about the impacts of such insufficiency on the goals of other universal service programs in rural areas – the only party that raises a somewhat contrary view with respect to "reasonable comparability" goals is the Wireless Internet Service Providers Association ("WISPA"). Specifically, WISPA contends that the use of a fiber-to-the-home ("FTTH") network architecture within the A-CAM is inefficient and unnecessary to achieve reasonably comparable service, and that the Commission should instead recalibrate the A-CAM design to reflect the use of fixed wireless technologies.[20]

This argument misses the mark, however. First, WISPA presumes without any evidence or analysis that what fixed wireless can deliver in rural America is indeed reasonably comparable to the average urban American's broadband experience. There are no data provided with the WISPA comments to assess what consumers want or need, what consumers in urban areas have come to expect and are receiving today, what speeds and capacity are needed to run certain services or applications, and what speeds or capacity a shared platform can truly provide (especially if more than a handful of consumers subscribe in a given area and depending upon topographical or other challenges). Such data points would be necessary to justify any change in direction for a model that has otherwise been used for many years now to distribute support and was even more recently approved to serve as a baseline for future auction efforts. Second, WISPA does not address the fact that the support being distributed pursuant to any such model offers will be for a series of years. There can be no question that fiber represents an asset that will be able to keep pace with user demand over its useful life, but there is serious question as to whether a fixed wireless network architecture – even if an important and helpful "tool in the toolkit" for expanding broadband access in the near-term – represents an efficient and effective long-term platform for achieving and

[20] WISPA Comments at 3-4.

sustaining universal service.[21] Third, WISPA fails to recognize that, despite the underlying design of the model, the funding mechanisms are not actually "paying for" FTTH deployments (although NTCA would contend they should as a matter of achieving "true universal service"). Instead, through the use of a per-location cap and other measures, A-CAM support is ratcheted downward to achieve lower speed targets in many cases, even as NTCA understands that many operators leverage such funds to deploy higher speeds where possible.

The Commission should therefore disregard the brief, baseless, throwaway request from WISPA to re-run the A-CAM model, and instead focus on better enabling the Commission's already-approved USF mechanisms to operate as they were designed. Put another way, the engines are already built and ready to run, and initial results are promising – but, as Congress keeps highlighting,[22] the fuel in them unfortunately remains lacking and more is needed to finish the job now started and realize the statutory mission of universal service.

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[21] *See, e.g.*, Thompson, Larry, and VandeStadt, Warren, *Evaluating 5G Wireless Technology as a Complement or Substitute for Wireline Broadband*, Vantage Point Solutions (Feb. 2017), at 5 (available at: https://www.vantagepnt.com/2017/07/10/white-paper-evaluating-5g-technology/) ("Today, wireless networks rely heavily on the wireline network, and this reliance will only increase with 5G since only a small portion of the last-mile customer connection (i.e., the 'local loop') will use wireless technologies. 5G networks are predominantly wireline deep fiber networks, with only a very small portion of their network using a wireless technology."); *Connect America Fund,* WC Docket No. 10-90, *ETC Annual Reports and Certifications*, WC Docket No. 14-58, Report and Order and Order on Reconsideration, 32 FCC Rcd 1624, 1631-1635 (2017), at ¶¶ 23-24 and 27 (describing value to rural consumers of higher-speed, lower-latency services that are reasonably comparable to those available in urban areas).

[22] *See* footnote 14, *supra*, and footnote 82, *infra*.

B. The Costs of Deploying and Operating Rural Broadband Networks Have Increased, Even in the Face of Numerous Stringent Caps, Constraints, and Other "Efficiency Measures" Adopted Since 2011.

As NTCA set forth in its initial comments, factors both within and outside of the communications industry have converged to increase the costs of deploying rural communications networks. These include so-called internal dynamics relating to increasing demand for broadband services and external factors including those that inform labor and construction costs in the telecom sector.[23] Numerous comments corroborate the information provided by NTCA. And, arising out of associations, coalitions, and individual carriers, they combine to create a uniform and consistent image of deployment costs and trends across the telecom industry.

In these regards, the data point toward a significant need to address rural deployment costs. The Blooston Rural Carriers report increased costs across a variety of categories, including "labor, fiber optic facilities, fuel, insurance, engineering, health care, and pole attachment[s]. . . ."[24] Increases in some categories were in the double and triple digits, and overall, costs exceeded GDP-CPI by "a sound margin."[25] Sacred Wind describes not only the full panoply of central offices, backhaul networks, and towers it must support, but also the frequency with which equipment must be either repaired or replaced on Navajo Reservation and near-Reservation lands.[26] These examples illustrate the propositions set forth by NTCA in initial comments regarding the unique costs of rural network deployment. WTA offers additional examples, describing animal infestation

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23 *See* NTCA Comments at 16-20.

24 Blooston Comments at 6.

25 *Id*.

26 Comments of Sacred Wind Communications, Inc., at 2-4.

and destruction of outdoor facilities.[27] Also, and as noted by NTCA in initial comments,[28] upgrading facilities to new capabilities may involve costs associated with rehabilitating disturbed land.[29]

Despite these challenges, rural carriers are using innovative technological solutions to meet regulatory, market, and geographic demands. South Park Telephone Company, a rural provider that serves more than 600 square miles in Colorado, does not have any cities or towns in its service area that would tend to offset the high costs of serving the least densely populated service areas.[30] In addition to sparse population, SPTC cites poor road conditions and "rocky, mountainous terrain" as contributing to the costs of deploying and maintaining communications infrastructure.[31] Like other rural carriers, SPTC identifies a deployment solution (in this instance, a combination of wired and fixed wireless) that meets the specific and unique characteristics of its service area.[32] However, even this rational and economic approach rocket-launches the company to the Commission's $250 monthly cap. As SPTC describes, the large service area and lack of lower-cost, higher density areas to offset very high-cost areas combine with "lumpy investment" to

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27 WTA Comments at 12.

28 *See* NTCA Comments at 22.

29 WTA Comments at 12. Like NTCA, WTA invokes data from its representative rural members to illustrate increased deployment and operation costs. For example, WTA explains the shrinking distance between digital loop carriers and customer premises as broadband speed demands increase. These necessitate increasing fiber-mile deployments. The data presented by WTA, combined with that of NTCA and other commenters, corroborate the general propositions that the costs of deploying broadband in rural areas are increasing due to both internal industry-demand costs as well as factors that are external to the industry. *See id*. at 13-14.

30 Comments of South Park Telephone Company ("SPTC"), at 1-2.

31 *Id*.

32 *Id*. at 3.

warrant an *increase* in the monthly cap.[33] And, as noted by the Broadband Alliance of the Midwest, "BAM companies have deployed or are currently building broadband capable networks including FTTH to the vast majority of their subscribers as demonstrated by their ineligibility for model election in the Commission's initial model election."[34] Companies are already operating at the highest margins of efficiency, yet the series of caps, cuts and constraints imposed by the Commission over the past several years would leave companies unable to increase capital investment.[35] The impacts of insufficient budgets are absorbed by carriers across the country. As FWA notes, the Commission itself "recognized the adverse impact of the [budget control] and eliminated its impact for the current budget period. (June 2017 to July 2018)."[36] FWA explains that the budget control mechanism caused high-cost support reductions among its client service areas (across Arkansas, Kansas, Oklahoma and Texas) that ranged from 11.6 percent to 19.8 percent. The result is a 10.61 percent *reduction* of network plant in service at a time when the Commission has called for an *increase* in broadband service capabilities.[37]

And, yet, as USTelecom cautions, an inflationary factor-prompted increase of $12 million (*i.e.*, increasing the current "run-rate" of Cost-Based Support for inflation back to 2011 and stopping there) will be insufficient by itself to meet the increasing costs over time of bringing broadband to the further reaches of the Nation. The inflationary factor as a supplemental increase is necessary to keep pace with rising costs, generally, but the *baseline* of the fund must be

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33 *Id*. at 6.

34 BAM Comments at 11-12 (internal citation omitted).

35 *Id*.at 12.

36 FWA Comments at 4.

37 *See id*. at Table 3.

sufficient.[38] USTelecom's comments are consistent with the data accumulated and presented by NTCA: the cost of network deployment is increasing not simply by double-digits but, in some instances, by magnitudes between 23 percent and 36 percent annually. These increases occur at a time when USF recipients confront the negative impacts of the budget control, frozen national average loop costs, and expense caps.[39]

By contrast, NCTA (or "Cable") supposes without explanation or basis that the Commission can mitigate increased A-CAM support with a "concomitant reduction in support" for rate-of-return carriers.[40] Labor and other costs, however, are informed in part by factors outside the telecom industry.[41] Even *non-communications specific jobs* in the tech industry demand higher wages due largely to the specialized nature of the functions performed and support provided. By way of example, customer service representatives on average are paid 16 percent more by tech/telecom firms than in retail environments; installation, maintenance and repair workers enjoy wages 21 percent higher than similar workers in non-tech industries.[42] Notably, this is not a "rural" or "RLEC" issue: these data represent a spectrum of communications and technology firms including AT&T and Amazon due to the highly technical nature of the work to be done. Rural telecom providers confront the general condition of high construction labor cost inputs,[43] but must

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38 USTelecom Comments at 4.

39 *Id*. at 5.

40 Comments of NCTA-The Internet & Television Association ("Cable"), at 3.

41 NTCA Comments at 22.

42 Mandel, Michael, *An Analysis of Job and Wage Growth in the Tech/Telecom Sector*, Progressive Policy Institute (Sep. 2017), at 20 (available at http://www.progressivepolicy.org/wp-content/uploads/2017/09/PPI_TechTelecomJobs_V4.pdf).

43 NTCA Comments at 18-19.

also be prepared to confront the general wage dynamics of the tech industry. These data cannot be ignored in assessing how to ensure fulfillment of the universal service mandates of the Communications Act.

C. The Budget Should Aim for "True Universal Service" – or, at the Very Least, The Budget Must be Set at Amounts Sufficient to Fulfill USF Program Requirements and Objectives as Designed by the Commission Itself.

As a starting point, the law requires that the Commission set a high-cost USF budget that provides "specific, predictable and sufficient" support.[44] In its initial comments, NTCA noted that the budget in its current state cannot possibly be considered to satisfy the "sufficiency" mandate in particular when: (1) it fails to enable the provision of reasonably comparable services at reasonably comparable rates (which, as described above and in prior filings, it does not); and (2) it fails even just to fulfill the Commission's own designs for the mechanisms in question – cutting support that those mechanisms otherwise indicate is necessary to promote universal service simply and solely because resources are not provided.[45] Indeed, the Commission recently adopted an order that, in the face of similar circumstances, recalibrates the rural health care USF budget to reflect what an inflationary factor would have yielded in terms of support looking back to 1997, and then applies an inflationary factor going forward as well to that program's adjusted budget.[46] Comparable measures have been applied to the E-rate and Lifeline programs in past years,[47]

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44 47 U.S.C. § 254(b)(5).

45 NTCA Comments at 27-30.

46 *Promoting Telehealth in Rural America*, WC Docket No. 17-310, Report and Order (rel. June 25, 2018), at ¶¶ 13 and 21-23.

47 *See Schools and Libraries Universal Service Support Mechanism*, CC Docket No. 02-6; *A National Broadband Plan for our Future*, GN Docket No. 09-51, Sixth Report and Order, 25 FCC Rcd 18762, 18781-84 (2010), at ¶¶ 35-40 (increasing the E-rate budget by the "same index the Commission uses to inflation-adjust revenue thresholds used for classifying carrier categories for various accounting and reporting purposes and to calculate adjustments to the annual funding cap for the high-cost loop support mechanism," but ironically not for purposes of increasing the high-

leaving high-cost USF as *the only USF program* crammed within a legacy budget that fails to recognize the challenges of achieving universal service in a broadband world or the fact that costs of deploying network infrastructure are increasing, rather than decreasing.

For these reasons, NTCA has argued that the high-cost USF budget going forward must:

> (1) reflect reasonable expectations as to demands for program support over time; (2) be sized to achieve "true universal service" in the form of scalable networks that can evolve to meet consumer demand, or be sized sufficiently at the very least to correspond to the set of buildout and other performance tasks designed by the Commission; (3) be sized sufficiently as well to ensure "reasonable comparability" in terms of services and pricing; (4) provide greater predictability to the extent that any projected budget nonetheless turns out to be insufficient in a future period; and (5) include an appropriate inflationary factor just as other USF programs do today.[48]

Relying upon such touchstones, and based upon detailed analysis and explanations,[49] NTCA recommended that the budget for RLEC high-cost USF programs be set at the following estimates *at a minimum* (transitioning over a 2018 to 2026 budget term as described in Attachment 2 of its initial comments) to achieve the goals of the Commission's own mechanisms as already

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cost USF budget itself); *Modernizing the E-rate Program for Schools and Libraries*, WC Docket No. 13-184, Order and Further Notice of Proposed Rulemaking, 29 FCC Rcd 8870 (2014); *Modernizing the E-rate Program for Schools and Libraries, Connect America Fund*, WC Docket Nos. 13-184, 10-90, Second Report and Order and Order on Reconsideration, 29 FCC Rcd 15538 (2014) (increasing the authorized E-rate budget by $1.5 billion annually); *Lifeline and Link Up Reform and Modernization et al.*, WC Docket No. 11-42 et al., Third Report and Order, Further Report and Order, and Order on Reconsideration, 31 FCC Rcd 3962, 4111 (2016), at ¶¶ 400-403 (increasing the target Lifeline budget to $2.25 billion annually and attaching an inflationary factor to that budget target).

48 NTCA Comments at 30-31.

49 *Id*. at 32-33, 41-48, and Attachment 2 (explaining the basis for such estimates, including the potential for variability in any given year due to "glide path" transitions, etc.).

designed – if not higher still to achieve an evolving standard[50] of "true universal service" in the future:

Calendar Year 2018 – Approximately $2.55 billion

- **$631.5 million to "fully fund" existing A-CAM offers at $200 per location**
- **$1.43 billion to "fully fund" Cost-Based Support**
- **$45 million for the Alaska Plan**
- **$400 million for CAF-ICC support**
- **Approximately $50 million to accommodate "orphan" parent trap exchanges, additional Tribal Broadband support,[51] and other potential support demands that may be approved by the Commission as a result of the NPRM**

Calendar Year 2026 – Approximately $2.8 billion

- **$631.5 million to "fully fund" existing A-CAM offers at $200 per location**
- **$1.75 billion to "fully fund" Cost-Based Support**
- **$45 million for the Alaska Plan**
- **$320 million for CAF-ICC support**
- **Approximately $50 million to accommodate "orphan" parent trap exchanges, additional Tribal Broadband support, and other potential support demands that may be approved by the Commission as a result of the NPRM[52]**

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50 *See* 47 U.S.C. § 254(c)(1); *see also* NPRM at ¶ 108 ("Consumer demand for higher speeds is also evident.")

51 *See, e.g.,* Comments of the National Tribal Telecommunications Association, at 2-6; Comments of Gila River Telecommunications, Inc., at 5-6 (indicating continued support for a Tribal Broadband factor as proposed by NTTA previously in lieu of tribal-specific A-CAM modifications); *contra* WTA Comments at 20; Blooston Comments at 11-12.

52 Interestingly, these increased budget estimates (along with remaining intercarrier compensation revenues) look to track to some degree to the network cost recovery that was being realized on a combined basis between USF and intercarrier compensation prior to the 2011 reforms, further highlighting how RLECs have actually "done more with less" for many years. It is also worth noting that these budget estimates do *not* include: (1) any potential further reforms or other developments that could place increased pressure upon or generate greater demand for Connect America Fund-Intercarrier Compensation ("CAF-ICC") support; or (2) the potential for changes to the mechanics of calculating HCLS support. With respect to CAF-ICC, if the Commission were to adopt additional intercarrier compensation reforms or if marketplace developments lead to declines in received access revenues, this could place significant additional strain on CAF-ICC and the USF budget. *See, e.g.*, ITTA Comments at 10. And with respect to HCLS, as noted in NTCA's initial comments, a freeze of HCLS at current levels, for example – in lieu of permitting HCLS to continue to decline due to the ironically and inappropriately named "rural growth factor – would necessitate an estimated $22 million in additional support in 2018 and more than $250 million in additional funds by 2026. *See* NTCA Comments at n. 154; *see also*

The fundamental thrust of NTCA's comments was echoed by commenters throughout the record. Numerous parties note the importance of providing "full funding" at $200 per location for A-CAM support, even while observing that this would only achieve the level of the Commission's initial offers of support rather than truly representing "full funding" of the model itself as designed.[53] As the Nebraska A-CAM companies observe, "[M]ore needs to be done to bridge this cost-versus-funding gap in order to make a meaningful difference in broadband availability in the highest-cost A-CAM company serving areas," and providing support at $200 per location "represents a reasonable middle ground . . . in expanding broadband availability to many additional customers, while only minimally impacting USF-paying consumers."[54] TDS more specifically identifies the precise number of rural locations to which it could deploy increased speeds were such funding made available, while also noting the greater efficiencies in network deployment that could be achieved through increased support.[55]

Likewise, many parties urge the Commission to remedy concerns about unrecovered costs and consumer impacts arising out of the insufficient budget for Cost-Based Support.[56] US Telecom aptly explains, "[T]he cap on the high cost program has had a severe economic impact on broadband providers in rural America," and notes that even with many accountability measures

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WTA Comments at 10-11; FWA Comments at 19-20; Blooston Comments at 9; SCC at 4-8; Concerned Rural LECs Comments at 2-4.

53 *See, e.g.*, USTelecom Comments at 6-9; Nebraska A-CAM Comments at 4-7; ITTA Comments at 15-19.

54 Nebraska A-CAM Comments at 5-7.

55 Comments of TDS Telecommunications Corp. ("TDS"), at 3-4.

56 *See, e.g.,* USTelecom Comments at 9-12; FWA Comments at 8-10; ITTA Comments at 11-16; WTA Comments at 8-9; Comments of the Small Company Coalition ("SCC"), at 2-3.

adopted in recent years (such as buildout requirements, competitive overlap provisions, and other caps), the costs of deploying broadband-capable networks in rural areas have increased and "rural providers are having to provide service at rates higher than in urban settings."[57] FWA similarly highlights in detail the very real impacts of insufficient support on broadband deployment and consumers, providing data showing substantial declines in network investments in the wake of uncertainty surrounding USF budgets.[58] The Broadband Alliance of the Midwest likewise observes, "[W]hen faced with potential large and variable reductions in support caused by the [insufficient budget], the reaction of Cost-based Companies has been and will continue to be to scale back needed broadband deployment in rural America."[59]

These many parties in turn identify similar needs to NTCA in stating what would represent a sufficient budget for RLEC high-cost USF programs. As an initial matter, the amount needed to "fully fund" A-CAM at $200 per location is well-defined ($66.6 million more annually),[60] with the only question being whether the Commission will provide such support to address sufficiency concerns and advance broadband deployment in the relevant study areas. As for Cost-Based Support, the estimates provided various parties with respect to budget shortfalls now and into the future all fall within comparable ranges. FWA, for example, indicates that $1.46 billion would appear to be required for Cost-Based Support from July 2018 through June 2019, a figure just slightly higher than that identified by NTCA for calendar year 2018 (and thus likely different only because of the six-month shift in time period stated).[61] ITTA meanwhile suggests resetting the

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57 USTelecom Comments at 9-10.

58 FWA Comments at 6.

59 BAM Comments at 9.

60 NPRM at ¶ 143.

61 FWA Comments at 8.

current budget to address current shortfalls, and then applying an inflationary factor to that amount going forward to establish a new RLEC high-cost USF budget.[62] Presuming this means the application of an inflationary factor either going forward to the current "run-rate" of RLEC high-cost support (which is approximately $2.416 billion, including incorporation of reserves) or even just to the original $2 billion budget target dating back to 2011 (not including reserves) and then carried forward, NTCA believes such an approach would roughly equate to, if not slightly exceed, the budget estimates cited in NTCA's initial comments.[63] Finally, the budget estimates cited by WTA track nearly precisely to those suggested by NTCA,[64] with the only material distinction appearing to be that WTA included within its estimates the effects of freezing HCLS (which as NTCA noted would add approximately $22 to $250 million annually over the budget term).[65]

Thus, the record reflects consistent estimates of the shortfalls anticipated with respect to both A-CAM and Cost-Based Support now and over the course of the next several years. For the reasons stated in the comments filed in this proceeding, and as stated herein and in NTCA's initial comments – and as it has done (or is now considering doing) for each of the other USF programs in the face of such concerns – the Commission should provide additional resources sufficient to address these shortfalls and thereby comport with the mandates for universal service set forth in

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62 ITTA Comments at 14.

63 *Contra* Comments of iCore Consulting, LLC, at 3 (recommending use of 2017 support levels with an inflationary factor applied going forward). NTCA estimates that setting a budget in this manner – only applying an inflationary factor to the original $2 billion budget target without adjustment – would still yield significant annual shortfalls of up to $180 million for years to come. (In effect, it would lock in the *status quo* of shortfalls.) Meanwhile, application of an inflationary factor only to the Cost-Based Support portion of the overall RLEC USF budget would generate even greater shortfalls year after year.

64 WTA Comments at 8-9 and Exhibit A; *see also* Concerned Rural LECs Comments at 7 (encouraging full recalibration of HCLS).

65 *See* footnote 52, *supra*.

federal law. Moreover, the record significantly reflects a consistent call for *all* high-cost USF shortfalls to be addressed at the same time in furtherance of the mission of universal service. In lieu of funding only one high-cost USF program over another, commenters observe that the Commission's universal service mandates apply with equal force to all rural Americans, and even as some parties may focus upon one mechanism or another, the clear consensus is that no area should be left behind simply because a different support mechanism may be best positioned and utilized to promote the availability and affordability of services there.[66]

In fact, even as parties support a new model offer for all providers – and not just a "glide path" transition for those that would receive less support under A-CAM – there is general agreement with NTCA that such an offer should come only if existing A-CAM and Cost-Based Support shortfall are fully addressed first.[67] By contrast, there is substantial consensus generally for an immediate incremental "glide path" offer;[68] the record also supports this including the prospect of capping the loss of support, which has significant merit and contains the greatest probability of adoption, ensuring additional funding is created and available for redistribution to other recipients of Cost-Based Support.[69] As NTCA explained in its initial comments, however,

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66 *See, e.g.,* WTA Comments at 6-23; ITTA Comments at 9-19; TCA Comments at 3-6; FWA Comments at 7-8.

67 ITTA Comments at 8, 20; *see also* USTelecom Comments at 4 (expressing concern about "left-overs" for those receiving Cost-Based Support); FWA Comments at 8 (cautioning that any new A-CAM offers "would enhance the budget shortfall" in Cost-Based Support in the absence of "further budget increases"); WTA Comments at 24 (supporting a new model offer for all providers after the Commission "has resolved the overall RoR budget, second ACAM glide path offer, and full ACAM and cost-based RLEC funding issues").

68 *See, e.g.*, ADTRAN Comments at 6-7; WTA Comments at 15-17; ITTA Comments at 24-27; Concerned Rural LECs Comments at 14-16.

69 *See* NPRM at ¶ 122 (suggesting the potential for a five to 15 percent transition that caps reductions at a specified percentage of current support levels); *see also* WTA Comments at 5, 18-19.

it is essential then that any "savings" generated through the future reductions in support for such "glide path"-electing RLECs must help offset future anticipated increases over the budget term in Cost-Based Support.[70]

The record therefore reflects remarkable consistency in estimating what the budget demands of these USF programs will be going forward, and substantial consensus in recommending how these shortfalls should be addressed. Indeed, the only outliers in the record are WISPA, which as noted and already addressed above suggested rebuilding A-CAM prior to any further model offers, and Cable, which recommends applying an arbitrary offset to any potential increase in any part of the high-cost USF budget so that the overall budget does not increase.[71] WISPA's argument has already been addressed above, however, and Cable's request has no basis in either fact or law.

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[70] NTCA Comments at 43 and n. 107 (explaining how highly-deployed carriers receiving Cost-Based Support could "cash out" and take a glide path offer at the "high watermark" of support, eviscerating the budgetary benefits that would have otherwise accrued to the benefit of others receiving Cost-Based Support); *see also* WTA Comments at 20 (observing that its future budget estimates could be revised downward should "glide path" amounts freed up accrue to the Cost-Based Support budget); Blooston Comments at 12-13; *Connect America Fund*, *et al*., WC Docket No. 10-90, *et al*., Report and Order, Order and Order on Reconsideration, and Further Notice of Proposed Rulemaking, 31 FCC Rcd 3087, 3104 (2016) ("2016 Order"), ¶ 66 (discussing need to "prevent companies from electing model-based support merely to lock in existing support amounts") (citing Letter from Cheryl L. Parrino, Parrino Strategic Consulting, on behalf of the Nebraska Companies, to Marlene H. Dortch, Secretary, FCC, WC Docket No. 10-90, at 2 and Attachment at 3 (filed Jan. 14, 2016)). The same is true with respect to CAF-ICC, which is projected to reduce over time and was designed so that "savings" realized would help to mitigate future budget increases in USF support. Of course, this dynamic also meant that prior *increases in CAF-ICC* have "eaten into" Cost-Based Support. The Commission should certainly remain vigilant as to how CAF-ICC changes could affect broader USF budget objectives, but there is no reason to change course now, particularly when CAF-ICC could offer a useful and necessary offset to future growth in Cost-Based Support as noted in the estimates above. *But see* footnote 52, *supra* (noting potential for increases in CAF-ICC support and negative effects on other USF support if further intercarrier compensation reforms are adopted or in the wake of other developments).

[71] Cable Comments at 3-4.

Specifically, Cable's notion of imposing arbitrary offsets in budget management has no rational tether to the statutory mission of universal service. The law mandates predictable and sufficient support. The Commission has in turn designed mechanisms – A-CAM and Cost-Based Support – that it presumably believes will comport with the law and distribute such support on an efficient and effective basis (or it would not have adopted them or would have reformed them further). Those mechanisms include numerous cuts, caps, and constraints, including but not limited to provisions that reduce or even eliminate support in instances where an unsubsidized competitor (such as a Cable company member) is confirmed to serve an area.[72] When those mechanisms nonetheless fail to distribute the support levels designed even after repeated reforms due to nothing more than a budget ratchet, and when the result is that rural carriers are reducing investment and consumers are paying higher prices for lesser broadband, this by definition falls short of sufficiency. Having neglected to provide any analysis of where or how the current USF mechanisms actually provide excessive support in an area where it is needed, Cable's baseless, data-lacking, and overly simplistic arguments that "the budget is too high – or at least just right" provide no basis for the Commission to decline to address the obvious funding shortfalls in the mechanisms as the Commission itself has designed them.

D. A Threshold Level of Support Will Not Address Sufficiency, but Could Help Greatly in Improving Predictability if Done Right.

The record reflects significant consensus in support of the Commission's suggestion to establish a carrier-specific threshold of support (or a "floor") that would not be subject to any budget control that may otherwise be required in subsequent years. As NTCA explained in its initial comments, the concept of this threshold or floor is essential to promote greater predictability

[72] *See* NTCA Comments at 14.

in Cost-Based Support, and it thus offers an important and useful complement to the much-needed effort to set sufficient budgets in the first instance:

> [T]he "ceiling" (the overall budget) and the "floor" (the carrier-specific thresholds that apply when the budget is exceeded) are two different things developed via two different processes to comport with two different but equally important goals – the overall budget for RLEC USF support must be set over the proposed Budget Term to comport with the sufficiency mandate of the statute by anticipating demand over time. By contrast, carrier-specific threshold levels of support throughout the Budget Term would provide greater predictability should reasonable attempts to project future overall budget demand nonetheless fall short in future years.[73]

Commenters generally agree with this assessment, and join NTCA in encouraging the Commission to adopt a threshold of some kind.[74] The only distinction between the commenters with respect to this issue arises in how specifically the threshold should be calculated. For example, NTCA proposed that the floor be set at an amount equal to the lesser of: (a) an average of that carrier's three prior years of calculated high-cost USF support on an "unconstrained" basis (*i.e.*, without reference to any effects specifically of the budget control mechanism during that period); or (b) the carrier's then-current level of "unconstrained" support.[75] Other commenters propose variations of this same concept: for example, WTA proposes *90 percent* of the same baseline suggested by NTCA (an average of the preceding three years of a carrier's unconstrained support),[76] ITTA recommends *80 percent* of that same average three-year baseline, and

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[73] *Id*. at 34 (emphasis in original). This is an essential point worth restating – the "floor" is not a substitute for sufficiency; it is a "safety valve" of sorts for predictability in the event that much-needed efforts to provide sufficient support nevertheless fail to capture demand in any given future year.

[74] FWA Comments at 11 and 13-14; Comments of the Range Family of Telecommunications Companies, at 2-6; Blooston Comments at 7-9; ITTA Comments at 8-9 and 29-30.

[75] NTCA Comments at 35.

[76] WTA Comments at 28.

USTelecom proposes utilizing *95 percent of the lowest of* a carrier's prior three years of "unconstrained" support.[77]

While NTCA is encouraged by the consensus reflected in these proposals generally with respect to the notion of creating a floor and also in the basic method by which it might be calculated, NTCA is concerned that the fractions applied to that floor (and also use of the "lowest" support figure as suggested by USTelecom) will yield thresholds that – while predictable in theory – are too low to provide incentives for investment that greater predictability would otherwise drive. More specifically, if carriers' *only* predictability comes in the form of recovery of an amount that is far below current levels of support based upon actual costs invested, then carriers will have no greater incentive or ability to keep investing than simply making an estimate that the budget control itself might be 18 percent or 20 percent (or greater) next year; indeed, in some cases under these other proposals, the floor may be low enough that it effectively provides no protection at all against the budget control and thus eviscerates the value otherwise of any perceived "predictability." For example, NTCA estimates that each proposed floor formula would logically result on average in support lower than current levels, but that the floors suggested by the other groups would be effectively irrelevant and meaningless as reasonable assurance for most carriers unless and until the budget control cuts exceeded 16 to 25 percent of then-current support. Put another way, the floors proposed by the others provide little predictability other than that RLECs could continue to face cuts roughly equal to or higher than those currently being experienced for years to come, if not in perpetuity.

By contrast, if NTCA's proposal is adopted – and particularly if it is paired with a corresponding recalculation of buildout obligations – the threshold will provide the level of

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77 USTelecom Comments at 19.

predictability and reasonable assurance needed to promote additional investment in long-term broadband infrastructure assets and realize the goals of these USF programs. It was for this reason that NTCA supported in its initial comments the notion that deployment obligations could be revised if a reasonable threshold level of support is established for each carrier.[78] Specifically, NTCA recommended simply utilizing the Cost-Based Support buildout obligation formulas already adopted for RLECs,[79] but recalculating those formulas and applying them over a now-eight-year budget term going forward based upon the "floor" of annual support that each RLEC can reasonably plan on receiving during that period. NTCA's proposal for a meaningful floor, complemented by a recalculation of buildout obligations for Cost-Based Support using existing formulas, would thus achieve multiple goals – promoting greater predictability based upon a reasonable level of assurance with respect to cost recovery and driving additional buildout based upon the sums that carriers can then more reasonably expect to receive as a threshold level of support going forward.

E. In Summary, the Commission Should Set a Budget for RLEC USF Programs to Last Through At Least 2026, and Should Apply an Inflationary Factor to the Entire High-Cost USF Program to Help Fund These and Other Important High-Cost Universal Service Initiatives.

In May 2018, 31 members of the United States Senate wrote to the Commission urging an increase in the amount of funding available for the rural health care USF program.[80] In response to that call, and based upon the record previously developed in that proceeding, the Commission has adopted an order that increases that program's budget by $171 million annually – a roughly 42

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78 NPRM at ¶ 155.

79 2016 Order, 31 FCC Rcd at 3149-3155, ¶¶ 162-180.

80 *Letter from Senators Heidi Heitkamp, John Hoeven, and 29 Senators to Chairman Ajit Pai* (dated May 14, 2018).

percent increase, representing what the budget would have been had an inflationary factor applied since 1997 – and then applies an inflationary factor to that increased budget going forward.[81]

Also in May 2018, 63 members of the United States Senate along with 130 members of the U.S. House of Representatives wrote to the Commission applauding the agency's efforts to address near-term budget crises in the high-cost USF program, but expressing concern about "persistent limitations on resources" and emphasizing the need still to address "longer-term budget solutions."[82] Much as in the case of rural health care, the record here confirms the concerns with respect to insufficiency of the 2011-era high-cost USF program budget and justifies taking steps to address those concerns on a "longer-term" basis as advocated by 193 members of Congress.

To this end, to comport with the statutory principles of universal service and the demands of the Commission's own programs as designed to achieve universal service, and based upon a detailed "bottoms-up" analysis of anticipated demand within the program over a series of years that is echoed by other, similar analyses in the record, NTCA renews its call that the RLEC high-cost USF budget be set for funding at estimated amounts of approximately $2.55 billion in calendar year 2018 and approximately $2.8 billion by calendar year 2026. These estimates, while likely still short of a goal of achieving "true universal service" in the form of much deeper fiber deployment throughout rural America, will at least enable funding of the Commission's own

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81 *See* footnote 46, *supra*.

82 *Letter from Senators Deb Fischer, Amy Klobuchar and 61 Senators to Chairman Ajit Pai* (dated May 15, 2018); *Letter from Reps. Kevin Cramer, Collin Peterson and 128 Representatives to Chairman Ajit Pai* (dated May 15, 2018). This sentiment was echoed yet again in recent reports released by the House and Senate appropriations committees. *See* Sen. Report No. 281, 115th Cong., 2nd Sess. (2018) ("[T]he Committee is troubled that the budget for the High Cost USF program has not been revised since 2011."); H. Rep. Report, Fin. Servs. & Gen. Gov't Approps. Bill 2019, 115th Cong., 2nd Sess. (2018) ("The committee . . . encourages the agency to consider applying uniform and consistent inflationary growth mechanisms to enable each USF program to carry out its respective objectives.").

programs as they have been designed. Indeed, the 2018 estimate represents only a *five percent* recalibrating increase over the current "run-rate" of support distributions in the RLEC USF programs, while the 2026 amount is only *nine percent* higher than the 2018 budget estimate. At the same time, the many caps and constraints in place within the RLEC USF programs will continue to promote and enhance fiscal accountability and ensure that valuable ratepayer resources are directed toward deployment and operation of advanced networks that offer quality voice and broadband services on a reasonably comparable basis in fulfillment of universal service.[83]

Moreover, as in the case of E-rate, Lifeline, and rural health care USF, an appropriate inflationary factor should be applied to the *overall* high-cost USF budget (based upon a $4.5 billion figure to start and increasing thereafter as discussed herein) to place this program on equal footing with other important initiatives under the USF umbrella, and to help ensure sufficient resources are available to meet program demands in future years – not just with respect to RLEC USF support, but also other essential high-cost initiatives such as Mobility Fund, Remote Areas, and disaster relief.[84] By contrast, as NTCA explained in its prior comments, attaching an inflationary factor only to the "2011 RLEC USF baseline budget" of $2 billion or the much smaller current Cost-Based Support budget alone would yield support shortfalls nearing or even exceeding $200 million annually for recovery of costs already incurred in deploying broadband in rural America.[85]

At the very least, if the Commission will not apply an inflationary factor to the entire high-cost USF budget to promote programmatic objectives with respect to RLEC USF mechanisms and beyond, then the Commission should apply an inflationary factor to the overall RLEC USF budget

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83 *See* NTCA Comments at n. 42 and accompanying text.

84 *Id*. at 50-51.

85 *Id*. at 49; *see also* footnote 63, *supra*, and accompanying text.

– but, as with the other USF programs, starting from the budget as it was first set and effectively capped (in 2011 at $2 billion annually for RLEC USF) and then bringing that forward.[86] The Commission observes that had an inflationary factor applied to that budget from the start, the current $2 billion "baseline" would be $193 million higher as of 2018 – which happens to be an amount just slightly above the 2017-2018 shortfall in Cost-Based Support.[87] Applying an inflationary factor going forward to this *adjusted, recalibrated baseline* would therefore at least help to mitigate substantially, if not entirely overcome, the prospect in future years of otherwise certain RLEC USF support shortfalls, and thus help to protect rural consumers who would otherwise be compelled to pay significantly higher rates that urban consumers for broadband services in defiance of the mandates for universal service.[88] It is also important to note that, in the face of a budget control that will resurrect in just a few days and begin to chop 15.5 percent of Cost-Based Support on average, consistent with the Commission's own observation in the NPRM[89] and the comments of Chairman Pai upon USAC's publication of the new budget control,[90] any additional resources provided to address the insufficiency of this program's budget

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86 *Connect America Fund; A National Broadband Plan for Our Future; Establishing Just and Reasonable Rates for Local Exchange Carriers; High-Cost Universal Service Support; Developing an Unified Intercarrier Compensation Regime; Federal-State Joint Board on Universal Service; Lifeline and Link-Up; Universal Service Reform – Mobility Fund*, WC Docket Nos. 10-90, 07-135, 05-337, 03-109; GN Docket No. 09-51; CC Docket Nos. 01-92 and 96-45; WT Docket No. 10-208, Report and Order and Further Notice of Proposed Rulemaking, 26 FCC Rcd 17663, 17711 (2011), at ¶ 126.

87 NPRM at ¶ 105.

88 It should be noted that applying an inflationary factor in this more limited manner, however – only to the RLEC USF baseline – would *not* help then to fund other important high-cost USF initiatives such as the remote areas fund, disaster recovery, or mobility initiatives. *See* footnote 85, *supra*, and accompanying text.

89 *Id*. at n. 363.

90 *Statement of Chairman Ajit Pai on Projected USF Budget Cuts for Small, Rural Carriers* (rel. May 1, 2018) ("The prior Administration's budget control mechanism has created constant

should be applied retroactively to July 1, 2018, so that RLECs and the rural consumers they serve will not be harmed by USF support cuts that will approach *$20 million per month* in just a few days.

On a related note, the Commission has asked in the NPRM whether it should continue the direction to USAC to forecast total high-cost demand as no less than one quarter of the annual high-cost budget, regardless of actual quarterly demand, in order to minimize volatility in contributions.[91] This is a prudent measure that benefits all stakeholders (contributors and recipients of support alike), and there is significant support in the record that the Commission should continue this directive to USAC[92] – although NTCA would encourage the Commission to do so based upon the current $4.5 billion level for high-cost USF as adjusted going forward subject to an appropriate inflationary factor as noted above.

Finally, it is important that the Commission use a proper measure of inflation in adjusting the high-cost USF budget moving forward. Although the GDP-CPI has been the traditional measure of inflation in other contexts within the high-cost program and other USF program budgets,[93] the record demonstrates that the primary cost associated with broadband network

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uncertainty for small, rural carriers, endangering their ability to make long-term investment decisions to bring high-speed broadband to the millions of Americans who still lack it. That's why earlier this year we allocated $180 million to such carriers as a stop-gap measure to avert budget cuts for the current funding year. But now small carriers are facing even more severe cuts in the coming year, which will only exacerbate the digital divide in rural America. That highlights the importance of the Notice of Proposed Rulemaking we advanced earlier this year.")

91 NPRM at ¶ 138.

92 USTelecom Comments at 22-23; TCA Comments at 6.

93 *See, e.g.*, 47 C.F.R. § 54.1303(a).

deployment and operation in high-cost rural areas is labor.[94] As NTCA explained in its initial comments, the GDP-CPI does not focus upon and is not driven significantly by labor costs generally or rural costs of labor in particular; instead, GDP-CPI "measures the average change over time in the prices paid by urban consumers in the United States for a market basket of goods and services."[95] For these reasons, NTCA continues to recommend at least consideration of an alternative inflationary factor more reflective of labor costs, such as the Employment Cost Index ("ECI"). In a paper provided as Attachment 1 to these Reply Comments, NTCA commissioned Competition Economics to analyze and compare the ECI and the GDP-CPI as inflationary measures in the context of telecommunications plant construction and operation. As Attachment 1 explains, the ECI is more reflective of the kinds of costs incurred in building and operating broadband networks generally; even as the "spread" between the two is not enormous as shown in Attachment 1, use of a labor-driven index like ECI (or even just a "weighted blend" of ECI and GDP-CPI to reflect relative capital and operating expenditures typically seen in rural broadband operations) would help to ensure better that the budget keeps pace with the challenges faced in delivering on the mission of universal service in high-cost rural America.

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94 *See, e.g.*, WTA Comments at 12-14; Blooston Comments at 6; BAM Comments at 11-12; USTelecom Comments at 4-6; FWA Comments at 4-6 and Attachment 1; Comments of Sacred Wind Communications, at 4-7.

95 NTCA Comments at 52 (citing *Comparing the Consumer Price Index with the gross domestic product price index and gross domestic product implicit price deflator*, Bureau of Labor Statistics, Monthly Labor Review, March 2016 (available at: https://www.bls.gov/opub/mlr/2016/article/comparing-the-cpi-with-the-gdp-price-index-and-gdp-implicit-price-deflator.htm)).

II. IN ADDITION TO ADDRESSING THE BUDGET CRISIS THAT IS UNDERMINING BROADBAND UNIVERSAL SERVICE OBJECTIVES, THE RECORD PROVIDES HELPFUL GUIDANCE REGARDING HOW THE COMMISSION MIGHT PROCEED AND TARGET EFFORTS WITH RESPECT TO ANY ADDITIONAL REFORMS.

A. Altering the Mechanics of the Budget Control Mechanism Would Disproportionately Harm One Kind of RLEC Over Another.

In its initial comments, NTCA urged the Commission to decline to modify the budget control mechanism for a *pro rata*-only reduction in lieu of the current mechanism's use of a hybrid per line/percentage approach.[96] By way of background, the current version of budget control mechanism was developed precisely to strike an equitable balance among carriers in the event that the high-cost USF budget turned out to be insufficient in future periods.[97] The rural industry deliberated for a long period of time about various methods of implementing such a mechanism, including options based only upon a per-line or percentage (*i.e.*, *pro rata*) basis. After taking account of the various concerns within their memberships – the relatively lower-cost companies that would do better under a percentage-based cut and the relatively higher-cost firms that would "benefit' from a per-line approach – the associations' members supported a hybrid as the best means of "sharing pain" fairly under a constrained budget (although the same 2015 filing also proposed a different standalone broadband support mechanism and expressly highlighted the need for increased funding even then).[98]

The only party that supports changing the budget control mechanism to a solely *pro rata* reduction is ITTA.[99] ITTA contends specifically that such an approach would provide RLECs

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96 NTCA Comments at 39-41; *see also* NPRM at ¶ 150.

97 *See* 2016 Order, 31 FCC Rcd at 3145, ¶ 150.

98 *Ex Parte* Letter from Michael R. Romano, Sr. Vice President, NTCA, to Marlene H. Dortch, Secretary, Commission, WC Docket No. 10-90, *et al*. (filed April 21, 2015).

99 ITTA Comments at 29.

with a predictable amount of recovery, "would level the playing field, and not advantage or disadvantage any carrier on the basis of its size as measured by line count." What ITTA misses, however, is that the percentage-only approach does *not* level the playing field if one takes account of the entire field rather than just a discrete corner. It is true that if one focuses *only* upon line count and *only* upon one type of company, a per-line approach adversely affects the relatively larger companies within ITTA's province. At the same time, however, if one takes full stock of the diversity of the industry, including not only line count/size but also cost characteristics/density, it is just as clear that a percentage-based cut is not a "level playing field" either.[100] Indeed, as FWA demonstrates, the Commission's proposal would reduce the amount of support received by eight out of nine recipients of Cost-Based Support by anywhere from 1.4 to 3.9 percent on top of the cuts they currently experience with the existing budget control mechanism.[101] FWA also points out that smaller carriers would suffer the largest decrease in support because they have fewer lines on which to spread out the cut.[102]

While NTCA applauds the Commission for attempting to eliminate the unpredictability created by the existing budget control mechanism, as FWA demonstrates, there is also a need for balance in attempting to do so. It is precisely for this reason – the need to reflect and address the concerns of the industry as a whole and consumers served by carriers of all kinds, and not just a subset thereof – that NTCA and other associations proposed and continue to support the balanced, hybrid budget control mechanism as adopted by the Commission in 2016 (even as the budget to

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100 *See* NTCA Comments at Attachment 3.

101 FWA Comments at 12.

102 *Id. See also* WTA Comments at 27 ("Eliminating the per-line portion will substantially increase the budget control mechanism support reductions per customer for the smaller RLECs that serve these 'highest cost' study areas….").

which it applies must be right-sized and made sufficient in the first instance to comport with federal law). At bottom, the budget control mechanism is not the problem – the budget itself is when it is set at insufficient levels. Chairman Pai captured this quite well when providing $180 million in one-time funding to "mitigate the effect of the budget control mechanism for the current funding year…."[103] The Commission should not vary now from the current means of applying the budget control mechanism, and should focus instead on promoting predictability by minimizing the impact of the budget control mechanism in the first instance – that is, by providing sufficient funding consistent with the universal service mandates of law and then, as a separate matter, establishing a reasonable threshold of support where in the future demand exceeds best effort estimates of necessary USF supply.

B. There is no Principled Policy Justification for Reducing the $250 Cap on Per-Line Support.

As NTCA stated in initial comments,[104] the Commission should decline to move forward with the proposal to lower the $250 per-line per-month cap on high-cost universal service support received by rural carriers. There is no reasoned analysis to demonstrate how this proposal would advance the goals of Section 254 in the potentially affected study areas or would benefit rural consumers, as the one party filing in support of the proposal fails to make the case that such a support reduction would benefit consumers in furtherance of universal service.

Indeed, a number of parties join NTCA in opposing this proposal.[105] As one example, SPTC discusses the very real financial ramifications of the current $250 cap, and further provides

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103 NPRM at Statement of Chairman Ajit Pai.

104 NTCA Comments at 55-57.

105 SPTC Comments at 4-8; TCA Comments at 8; FWA Comments at 16-17; ADTRAN Comments at 10; SCC Comments at 10-11; WTA Comments at 33-34.

an estimate of the support reductions that would result from amending the provision.[106] SPTC notes that its efforts to reduce expenses since the adoption of the $250 cap have pushed the company to the point where further support reductions would jeopardize its ability to continue serving 1,200 rural consumers that lack alternative service providers.[107] TCA provides a thoughtful analysis of the proposal as well; it describes how the current cap has already resulted in a number of companies decelerating the pace of deployment in an effort to avoid running afoul of the current $250 cap.[108] As TCA states, a reduction in the current cap would only exacerbate this problem and leave even more rural consumers stuck behind their urban counterparts in terms of access to reasonably comparable broadband service.[109] WTA similarly points to the historically unserved nature of the rural areas often in question and observes that the companies affected by the rule lack the scale to reduce expenses further.[110] In short, the reduction of the current cap would only harm the rural consumers in these areas that almost certainly lack any other options for service.

In addition to discussing the effect that a reduction in the $250 cap would have on rural consumers, commenters step forward to address the notion that the lack of waivers filed for and granted is somehow an indication that the cap should be adjusted downward. As FWA notes, the waiver process can often drag on for a year or more and does not come without significant cost, an untenable situation for a very small company.[111]

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106 SPTC Comments at 4-8.

107 *Id*.

108 TCA at 8.

109 *Id.*

110 WTA Comments at 33-34.

111 FWA Comments at 17; *see also* ADTRAN at 10.

By contrast, the only party supporting a reduction in the $250 per-line per-month cap offers nothing in the way of analysis.[112] Cable's comments are nothing more than a pitch for further reductions to an already insufficient budget management in the name of "efficiency," but they fail to recognize or understand the presence and effect of numerous mechanisms within the High Cost program that already target and ensure the efficient distribution of support. Operating expense limits adopted in 2016, corporate operations expense limits expanded in 2011, capital investment limits adopted in 2016, cost benchmarks below which support is not available, competitive overlap measures adopted in 2011 and enhanced in 2016, an overall budget control mechanism adopted in 2016, and a rate floor adopted in 2011 already help to ensure the most effective and efficient possible use of the USF budget. As NTCA demonstrated in initial comments, what is missing from the High Cost program is not efficiency or budgetary mechanisms to ensure such efficiency but "*sufficiency*" as required by statute.[113] A reduction in the $250 cap would not represent "efficiency" or responsible budget management – rather, it would represent a punitive measure that would harm rural consumers in the affected study areas and a step backward for the concept of universal service.

C. There is no Principled Policy Justification for Altering the Competitive Overlap Processes Already in Place.

The record in this proceeding supports retention of the current process for determining whether a purported unsubsidized competitor overlaps a RLEC high-cost universal service support recipient in 100 percent of the rural study area. Commenters demonstrate that the process works as intended, and that rather than purported unsubsidized competitors having insufficient incentive

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112 Cable Comments at 3-4.

113 47 U.S.C. § 254(b)(5).

to participate in the process, failure to identify areas as competitively served simply represents an inability to back up with detail broader coverage claims made on Form 477.

As an initial matter, as with the proposal to modify the $250 per-line, per-month cap on support, the proposal to modify the 100 percent competitive overlap process misses the mark in terms of adding predictability to the High Cost program. Simply put, revamping a mechanism that is working as intended is a poor use of the Commission's resources. This is particularly true when different unsubsidized competitor mechanisms already in place are yet to be implemented, and as one commenter states, the lack of action on that mechanism itself inhibits investment decisions by some rural carriers.[114]

As a number of commenters state, the "problem" with the 100 percent competitive overlap process stems not from a lack of incentive to participate by purported competitors but rather from the fact that the Form 477 data upon which the process is founded is high-level and notoriously inaccurate. As GVNW points out, certain areas have more than once been deemed "100 percent overlapped" based preliminarily on Form 477, with that determination later reversed after Commission examination via the challenge process.[115] In addition, as TCA correctly notes, "The record demonstrates that competitors are participating in the process, however, their participation

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114 *See* US Telecom Comments at 11 ("Currently, many rural broadband providers are inhibited from making further investments because they don't know the status of ongoing high cost USF in their service areas not only because of the unpredictable [budget] but also because the overlap question remains a lingering concern.").

115 *See* Comments of GVNW Consulting, Inc. on Behalf of Illinois Rural Local Exchange Carriers ("GVNW"), at 5 ("Seven areas identified as 100 percent overlapped in 2015 (and determined not to be 100 percent overlapped) were identified again in 2017 and, after examination by the Commission, were again found not to be 100 percent overlapped. It is reasonable to draw the conclusion that the faulty 477 Forms submitted in those seven study areas in 2015 were not corrected, were resubmitted in 2017, and triggered proceedings in the same study areas again. The initial submission of inaccurate data is problematic and regrettable, repeating those inaccurate submissions is inexcusable.").

frequently involves notifying the FCC that its assumptions and interpretations of their Form 477 filings are not accurate."[116]

Moreover, the proposal to utilize a competitive bidding mechanism to award support in ostensibly competitive areas falls apart under more careful consideration. While Cable and WISPA unsurprisingly embrace this notion,[117] the idea that auctions for support distribution should occur when an area is "significantly served" by a competitor flies in the face of logic. For one, as a couple of commenters state, this proposal is entirely at odds with the original purpose of the competitive overlap rules. The point of determining *unsubsidized* competition is to identify areas where *no support is needed* – not then to determine which of the entities there should get support.[118] Moreover, one would be hard pressed to argue that a competitive bidding process would be *less* burdensome on Commission staff; as GVNW points out, this proposal would "require correctly identifying areas eligible for the auction, designing an auction process, and conducting an auction, all to address the very few areas with potential overlaps, particularly since historically only one 100 percent overlap has been proven."[119] If reducing the burden on the Commission is a goal that the agency deems worth pursuing, GVNW also offers a workable solution: "a process which is

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116 TCA Comments at 9 (citing Letter from Beth Choroser, Comcast, to Marlene H. Dortch, Secretary, Commission, WC Docket No. 10-90 (filed Sept. 11, 2017); Letter from Ken Williams, President and CEO, W.A.T.C.H. TV Company, to Marlene H. Dortch, Secretary, Commission, WC Docket No. 10-90 (filed Aug. 24, 2017)).

117 Cable Comments at 4-6; *see also* WISPA Comments at 5-7 (suggesting competitive bidding for support in areas with partial competitive overlap exceeding 50 percent).

118 TCA Comments at 9-10; WTA Comments at 41. WTA offers an interesting observation, stating "if an unsubsidized competitor 'wins' the contemplated auction for a particular RLEC study area and the defeated RLEC is able to remain in business for at least a while, is not the RLEC then an 'unsubsidized competitor' that makes it unnecessary to provide high-cost support to the 'winner' of the reverse auction?" *Id.*

119 GVNW Comments at 12.

triggered by a challenge initiated and supported by an entity asserting overlap with unsubsidized voice and broadband service meeting the Commission's requirements, not by FCC Form 477 data which has proven to be inaccurate."[120] If anything, this debate underscores yet again as well why it is so important to "get it right" in identifying on a granular basis where unsubsidized competition does and does not exist – so that it is known where support should and should not flow under the Commission's "competitive overlap" rules to ensure that rural areas in need of support are not denied that support simply because of "false positives" with respect to competitive presence and also to ensure that support does not flow unnecessarily to rural areas that do not require support because a competitor truly serves the locations there on an unsubsidized basis.

Finally, it must be noted that in arguing for more aggressive overlap measures to help manage the budget, Cable provides *no evidence whatsoever* for its claim that rural areas are "significantly served" by other providers.[121] Setting aside even the substantial questions that exist – and have been noted recently by many policymakers[122] – regarding the accuracy of Form 477 data that are self-reported and lacking in granularity, a look at the Form 477 data shows how preposterous Cable's claim of significant rural coverage is. In fact, despite the fact that the Form 477 data almost certainly *overstate* coverage dramatically by measuring presence only at a census block level[123] and are essentially unvetted, the Interactive Map published by the Commission

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120 *Id*. at 11.

121 Cable Comments at 4.

122 *See, e.g.*, *Rebuilding Infrastructure in America: Investing in Next Generation Broadband*, Senate Commerce Committee Hearing (March 13, 2018) (available at: https://www.commerce.senate.gov/public/index.cfm/hearings?ID=CD8E48E0-A230-46F9-B00F-0C20D0278B19); *Technology subcommittee 'disappointed' with slow progress in rural broadband*, fedscoop (June 16, 2017) (available at: https://www.fedscoop.com/technology-subcommittee-disappointed-slow-progress-rural-broadband/).

123 *See, e.g.*, *Wireline Competition Bureau Concludes the 100 Percent Overlap Challenge Process*, WC Docket No. 10-90, Public Notice (rel. Nov. 2, 2017) (noting that comments and reply

shows that in rural areas across the upper Midwest, for example, cable technology delivers 10/1 Mbps broadband in only a fraction of rural areas as measured by Form 477[124] – and in some of those cases, the cable technology shown almost certainly is *the RLEC* itself that happens to use cable plant in part to fulfill its broadband performance obligations as a recipient of USF. Thus, claims of significant competitive service are belied even by data that almost certainly significantly overstate such service availability to start.

D. Means-Testing and Vouchers Have No Place in a Program Focused Upon Supporting the Business Case for Universal Networks.

The Commission should set aside proposals to rely on consumer vouchers or means-testing as an alternative to network-focused high-cost support. Consumer vouchers are inapposite to the goals of universal service and the actual dynamics of rural economics, network deployments, and rural market conditions. Means-testing (or a "phone voucher") was investigated, and rejected, as the Telecommunications Act of 1996 was formulated. Consumer vouchers do not enable or support network builds, maintenance, or upgrades. As TCA declares succinctly, the Commission should "permanently abandon the idea of 'means testing'" for high-cost support."[125]

Geographic areas served by providers receiving Cost-Based or model-based support are defined by market forces that are unable to support even a single provider. Portable subsidies that follow the consumer offer insufficient certainty to providers to build, maintain and upgrade networks in such areas. This is particularly true in the current environment of rapidly escalating

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comments filed with respect to Form 477 data did not provide evidence to confirm full overlap even where Form 477 data preliminarily indicated such overlap existed); GVNW Comments at 4-7 (describing detailed processes that have found inaccurate overstatement of coverage in Forms 477).

124 *See* Attachment 2 hereto.

125 TCA Comments at 10.

technological development and increasing integration of broadband-enabled capabilities in numerous facets of daily residential and industrial life. Attaching support to users, rather than the network, would risk harming *all* network users if support "follows" a resident who moves out of town (unless vouchers are somehow calibrated to the costs of individual locations). Rural infrastructure, whether communications, power, or water, demands significant, multi-million-dollar investments for the long-term. The useful life of these investments may well extend beyond the average residence of a citizen within a specific community. Households tend to migrate more rapidly than the useful lives of network equipment.[126] In fact, more than 40 percent of Americans do not live in their state of birth.[127] Moreover, the relative wealth of any community may depend upon external market factors that tend to encourage growth or contraction of employment and industry in each community. Those economic trends, which in turn manifest in personal wealth levels, may fluctuate during the lifetime of long-term infrastructure investment. Designating high-cost support in the form of consumer vouchers would create a constantly changing rate structure that would not only vary from household to household, but which would also be based on events that are exogenous to and outside the control of the communications provider. The certainty of network investment, accordingly, is better rooted in support that is aimed at the network itself, guided by the statutory mandate to achieve rates *for all* subscribers that are reasonably comparable to those charged in urban areas. Affordability gaps for *individual* consumers that emerge after reasonable rate comparability between rural and urban areas has been achieved can then be mitigated through the Lifeline program.

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126 Lehman, Dale, *Ten Myths that Could Destroy Universal Service* (2006), at 7 (available at http://www.keepamericaconnected.org/data/TenMythsUSF.pdf).

127 Ren, Ping, *Lifetime Mobility in the United States: 2010, American Community Survey Briefs*, United States Census Bureau (Nov. 2011), at 1 (available at https://www.census.gov/prod/2011pubs/acsbr10-07.pdf).

In short, network deployment costs depend upon the characteristics of the service area rather than the variable income levels of households within that area. The prospect of implementing a consumer voucher program would be unwieldy. ADTRAN recognizes the difficulty (if not impossibility) of this task, explaining that "territories of rate of return carriers may include pockets of low-income and higher income households."[128] Means-testing implicates rate discrimination[129] and privacy concerns if *all* subscribers in a service area must proffer private information to obtain service. This is distinguishable from seeking Lifeline eligibility, in which the exchange of private data is occasioned only by an applicant's request for a reduced rate - as opposed to a prerequisite to obtain service. As WTA warns, means testing would entail substantial administrative costs that are unrelated to the core goal of universal service, which is to "encourage and enable the *construction, operation and maintenance of networks.*"[130] Recognition of the usefulness of Lifeline, by contrast, to conquer individual affordability barriers to broadband adoption was offered by ADTRAN, which declared, "the most efficient and targeted means of doing so would be to enhance the Lifeline program to address this issue directly."[131]

The conditions borne of high infrastructure costs that are combined with small ratepayer bases have been addressed within different industries with *network* focused solutions. By way of example, electric rate bases provide specified returns for electric cooperatives from rural consumer rates without regard to the individual wealth levels of electricity users. Similarly, universal service mechanisms of the Commission should distinguish between the steps necessary to build and

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128 ADTRAN Comments at 10-11; *see also* WTA Comments at 46 ("[L]ow income households can reside in both higher-cost rural areas and lower-cost rural areas.")

129 TCA Comments at 10.

130 WTA Comments at 47; *see also* SCC Comments at 12.

131 ADTRAN Comments at 11.

maintain reasonably comparable networks and measures that may be needed to bridge the affordability gap for individual users.

E. There are Several Other Measures that Warrant Additional Consideration and Development.

1. "A Connection is a Connection" Reform of CAF-BLS

In its initial comments, NTCA expressed support for further discussion and development of the concept of shifting from the CAF-BLS mechanism adopted in 2016 to a system where, essentially, "a connection is a connection" – meaning that all working loops, whether enabling voice or broadband or both, would receive the same level of support based upon the prior Interstate Common Line Support calculation and the HCLS mechanism still in place today.[132] To be clear, NTCA shares some of the preliminary concerns raised by other parties regarding the potential for disruption though such further reform, and there is an absolute need to ensure that any such change would not result in a masking of insufficient USF program support by diverting cost recovery to rates that ultimately get paid by rural Americans nonetheless.[133] Still, this "a connection is a connection" concept could offer great promise in simplifying and rationalizing distribution mechanics and to address potential incentives to shift costs to standalone broadband support in a way that is not reflective of consumer demand but rather intended to obtain more support from a fixed budget.[134] For these reasons, NTCA is hopeful that the Commission will engage with stakeholders on further examination and development of such a concept in the wake of addressing

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132 NTCA Comments at 66-68 (citing NPRM at ¶ 164).

133 *See, e.g.*, WTA Comments at 45-46; *see also* NTCA Comments at 67 ("This last point is particularly critical to note. Such a reform would not by itself help address cost recovery shortfalls . . . . [S]uch a change can and will only work to fulfill universal service policy *if* it does not then allow cost recovery shortfalls to end up 'hidden away' in special access.").

134 BAM Comments at 6-7 (noting that the Consumer Broadband-Only Loop jurisdictional cost shift "is a substantial driver of the budget shortfall").

the budgetary concerns that are the primary focus of the current NPRM, and provided that it is recognized that any such change must continue to be supported by sufficient USF resources that do not result in rural Americans paying higher rates for broadband services.

2. Changes to Operating and Capital Expense Limits

In its initial comments, NTCA indicated that no further reforms were likely warranted to the existing operating expense limits given that the Commission had only recently resolved two of the most significant concerns raised previously with respect to those caps – that is, how they apply on tribal lands and the lack of an inflationary factor within the calculations.[135] In the wake of the initial comment filing, however, two parties filed petitions for reconsideration with respect to tribal operating expense limits, observing in essence that relatively higher operating expenses are inherent in operations on tribal lands regardless of the level of 10/1 broadband deployment in such areas.[136] NTCA has long shared the perspective that operating challenges are uniquely greater for entities of all kinds that serve tribal areas,[137] and therefore recommends that the Commission grant these petitions. Moreover, another party highlighted concerns with respect to the lack of business locations within calculation of the operating expense limits, noting that this results in a higher amount of operating expenses being allocated to a smaller amount of residential-only locations than actual facts on the ground reflect.[138] This appears to be driven largely by a technical complication associated with the public availability of business location data, but if this cannot be

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135 NTCA Comments at 70-72 (citing *Connect America Fund*, WC Docket No. 10-90, Report and Order (rel. April 5, 2018) and Order at ¶ 88).

136 Petition for Reconsideration of Mescalero Apache Telecom Inc., WC Docket No. 10-90 (filed May 30, 2018); Petition for Reconsideration of Sacred Wind Communications, Inc., WC Docket No. 10-90 (filed May 31, 2018).

137 Comments of NTCA, WC Docket No. 10-90 (filed May 12, 2016), at 35-36.

138 Concerned Rural LECs Comments at 25.

overcome, then NTCA would nonetheless urge the Commission to consider a creative means of addressing this shortcoming through some kind of factor or other measure that would solve for a *status quo* in which the operating expense limit pretends as if business locations do not exist "in the denominator" even as the costs of serving them may be included "in the numerator."

Turning to the capital investment allowance ("CIA"), there is substantial support in the record for NTCA's position that this mechanism should be modified because it has failed to operate as initially intended and proposed. While one party recommends scrapping the limit altogether,[139] there is value in having some "metering influence" on investment practices under a fixed USF budget. Accordingly, NTCA supports replacing the current CIA mechanism with: (1) an annual certification filing (subject to a *de minimis* threshold) by a licensed professional engineer attesting that the RLEC network has been designed and upgraded in an efficient manner reflecting circumstances in the area to be served and migration over a certain period of years toward higher broadband speeds, greater network reliability, and a forward-looking architecture; and (2) a requirement to retain for a period of at least five years the contracts showing how procurement of supplies and labor costs track to network deployment efforts in furtherance of an efficient broadband buildout. At a minimum, if the CIA will be retained in some form, the Commission should eliminate the project-based limitation therein to help simplify and streamline compliance, monitoring, and enforcement – and several other parties share this perspective as an essential step if the CIA will be retained in anything resembling its current form.[140]

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[139] ITTA Comments at 31-32.

[140] FWA Comments at 20-21; Concerned Rural LECs Comments at 22-23.

3. Changes to Accounting Standards

In its initial comments, NTCA supported targeted reporting and accounting changes, including greater uniformity between accounting of operating leases in the Uniform System of Accounts and generally applicable accounting standards.[141] No party objected to this proposal, and TDS provided a detailed explanation as to why transitions to Financial Accounting Standards Board guidelines would strike an efficient balance between public disclosure and regulatory ratemaking needs.[142] The Commission should therefore act on its proposals in this regard.

IV. CONCLUSION

As 193 members of Congress, Chairman Pai, and other commissioners have all rightly observed, action on the instant NPRM is necessary to address a universal service insufficiency crisis that has been years in the making. In the face of USF budget shortfalls, at a time when policymakers have made rural broadband one of our highest national priorities, those entities devoted to advancement of rural broadband are ratcheting back on broadband investment and being compelled to increase consumer broadband rates (or to decline to offer standalone broadband at all) because of an insufficient and outdated budget. To be clear, the Commission has taken initial much-welcomed and much-needed steps to fund its A-CAM program and to provide a "stop-gap" to mitigate a serious budget shortfall in Cost-Based Support. But it is long past time for a comprehensive approach to budgeting for the high-cost USF program to ensure sustainable progress toward statutory mandates for sufficiency, predictability, and reasonable comparability of services. NTCA therefore urges the Commission to take steps consistent with the recommendations herein to provide sufficient resources to advance the mission of universal service in high-cost areas of the United States with provisions to ensure fiscal accountability and proper

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141 NTCA Comments at 72; *see also* NPRM at ¶¶ 173-174.

142 TDS Comments at 5.

use of resources, and to consider other targeted measures to improve the workings of the USF programs without causing disruption or creating regulatory uncertainty.

Respectfully submitted,

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ATTACHMENT 1

USE OF THE EMPLOYMENT COST INDEX AS AN INFLATIONARY FACTOR IN CALCULATING BROADBAND SUBSIDIES

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JUNE 2018

COMPETITION ECONOMICS LLC

USE OF THE EMPLOYMENT COST INDEX AS AN INFLATIONARY FACTOR IN CALCULATING BROADBAND SUBSIDIES

MICHAEL A. WILLIAMS, PH.D.

JUNE 2018

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I INTRODUCTION

1. Section 254 of the Communications Act of 1934, as amended (the "Act"), contains several important provisions with respect to the advancement of universal service, including principles that: (a) quality services shall be available at affordable rates; (b) services shall be reasonably comparable in price and quality as between urban and rural areas; and (c) universal service fund ("USF") support shall be sufficient and predictable.[1]

2. USF programs enable deployment and ongoing operation of broadband-capable communications networks in rural America. However, the current USF budget is insufficient to achieve the statutory objectives listed above or to advance broader public policy objectives with respect to universal broadband access. Specifically, the Federal Communications Commission ("FCC") should include an appropriate inflationary factor in establishing the USF budget.[2]

3. The Consumer Price Index ("CPI") is the most widely used inflationary factor to adjust consumers' income payments (for example, Social Security). However, for the reasons described in this report, the U.S. Department of Labor, Bureau of Labor Statistics "Employment Cost Index" ("ECI") is a more appropriate inflationary factor to use in establishing a USF budget.

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[1] NTCA-The Rural Broadband Association filed comments on USF Budget, Connect America Fund. WC Docket Number 10-90, May 25, 2018, available at https://www.ntca.org/sites/default/files/federal-filing/2018-05/05.25.18USFBudgetNPRMCommentsFINAL.pdf.

[2] NTCA-The Rural Broadband Association filed comments on USF Budget, Connect America Fund. WC Docket Number 10-90, May 25, 2018, available at https://www.ntca.org/sites/default/files/federal-filing/2018-05/05.25.18USFBudgetNPRMCommentsFINAL.pdf.

II THE EMPLOYMENT COST INDEX IS AN APPROPRIATE INFLATIONARY FACTOR

A. The ECI as A Measure of Inflation

4. Inflation is defined as "a process of continuously rising prices or, equivalently, of a continuously falling value of money."[3] Various indexes have been devised to measure different aspects of inflation. As discussed by the Bureau of Labor Statistics: "The CPI measures inflation as experienced by consumers in their day-to-day living expenses . . . the Employment Cost Index (ECI) measures inflation in the labor market."[4]

5. According to the Bureau of Labor Statistics, "[t]he National Compensation Survey produces quarterly indexes measuring changes over time in labor costs, [i.e., the] Employment Cost Index (ECI). . . ."[5] As further explained by the Bureau of Labor Statistics: "ECI is a Principal Federal Economic Indicator that provides data on how labor costs are changing and how the economy is performing. The ECI measures changes in labor costs by tracking the cost of employees to employers. . . . In the private sector, business owners and human resources professionals can use the ECI to make decisions about pay adjustments to help them stay competitive. In the public sector, the Federal Reserve and others use the ECI to gauge the health of the labor market, adjust contracts, and research the labor market."[6]

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[3] United States Department of Labor, Bureau of Labor Statistics, "Consumer Price Index Frequently Asked Questions," available at https://www.bls.gov/cpi/questions-and-answers.htm.

[4] United States Department of Labor, Bureau of Labor Statistics, "Consumer Price Index Frequently Asked Questions," available at https://www.bls.gov/cpi/questions-and-answers.htm.

[5] United States of Labor, Bureau of Labor Statistics, "Employment Cost Trends," available at https://www.bls.gov/ncs/ect/.

[6] United States of Labor, Bureau of Labor Statistics, "Employment Cost Trends: Employment Cost Index Videos," available at https://www.bls.gov/eci/videos.htm.

6. The ECI, more so than the CPI, is reflective of the costs of deploying and operating a telecom network for two primary reasons. First, the CPI measures changes over time in prices paid by consumers, while ECI measures changes over time in labor costs. Second, the CPI does not divide urban consumers into specific occupational groups, while the ECI provides data by occupational group and industry. As discussed below, the ECI based on the occupational group "[i]nstallation, maintenance, and repair" provides an appropriate inflationary factor to use in establishing a USF budget for a labor-intensive industry.

B. The ECI Measures Changes in Labor Costs Instead of Changes in Prices Paid by Consumers

7. To deploy and maintain broadband in the rural area, "labor costs continue to represent the largest cost input to deployment and operational efforts – especially in rural areas where the simplest 'truck roll' to build or maintain a network can consume hours at a time."[7]

8. The CPI, however, is primarily based on prices of food, clothing, and shelter. Moreover, the CPI only includes prices of services that consumers purchase on a day-to-day basis, such as transportation, medical services, recreation, education, and communications.[8] The CPI, thus, is not reflective of changes in labor costs in construction industries. According to the Bureau of Labor Statistics, "[t]he Consumer Price Index (CPI) is a measure of the average change over

[7] NTCA-The Rural Broadband Association filed comments on USF Budget, Connect America Fund. WC Docket Number 10-90, May 25, 2018, available at https://www.ntca.org/sites/default/files/federal-filing/2018-05/05.25.18USFBudgetNPRMCommentsFINAL.pdf.

[8] United States Department of Labor, Bureau of Labor Statistics, "Consumer Price Index Frequently Asked Questions," available at https://www.bls.gov/cpi/questions-and-answers.htm.

time in the prices paid by urban consumers for a market basket of consumer goods and services."[9] The Bureau of Labor Statistics further explains that "[t]he CPI is generally the best measure for adjusting payments to consumers when the intent is to allow consumers to purchase at today's prices, a market basket of goods and services equivalent to one that they could purchase in an earlier period."[10]

9. In contrast, the ECI calculates indexes of total compensation, wages and salaries, and benefits separately for all civilian workers in the United States (as defined by the National Compensation Survey), for private industry workers, and for workers in state and local government. For all of these categories, the ECI calculates the same measures by occupational group, industry group, and worker and establishment characteristics.[11]

C. ECI Measures Labor Costs by Occupational Group and Industry

10. Furthermore, as explained by the Bureau of Labor Statistics, the CPI is based on prices paid by individuals living in urban areas: "The CPI reflects spending patterns for each of two population groups: all urban consumers and urban wage earners and clerical workers. The all urban consumer group represents about 93 percent of the total U.S. population. It is based on the expenditures of almost all residents of urban or metropolitan areas. . . . Not included in the CPI are

[9] United States Department of Labor, Bureau of Labor Statistics, "Consumer Price Index," available at https://www.bls.gov/cpi/.

[10] United States Department of Labor, Bureau of Labor Statistics, "Consumer Price Index Frequently Asked Questions," available at https://www.bls.gov/cpi/questions-and-answers.htm.

[11] United States Department of Labor, Bureau of Labor Statistics, "National Compensation Measures: Calculation," available at https://www.bls.gov/opub/hom/ncs/calculation.htm.

the spending patterns of people living in rural nonmetropolitan areas, those in farm households, people in the Armed Forces, and those in institutions, such as prisons and mental hospitals."[12]

11. In contrast, the ECI collects wages and salaries from randomly sampled workers across the U.S. As stated by the Bureau of Labor Statistics: "With an employee list, the [Bureau of Labor Statistics] field economist uses equal probability sampling to select a sampled job, for which each name on the list has an equal chance of selection."[13]

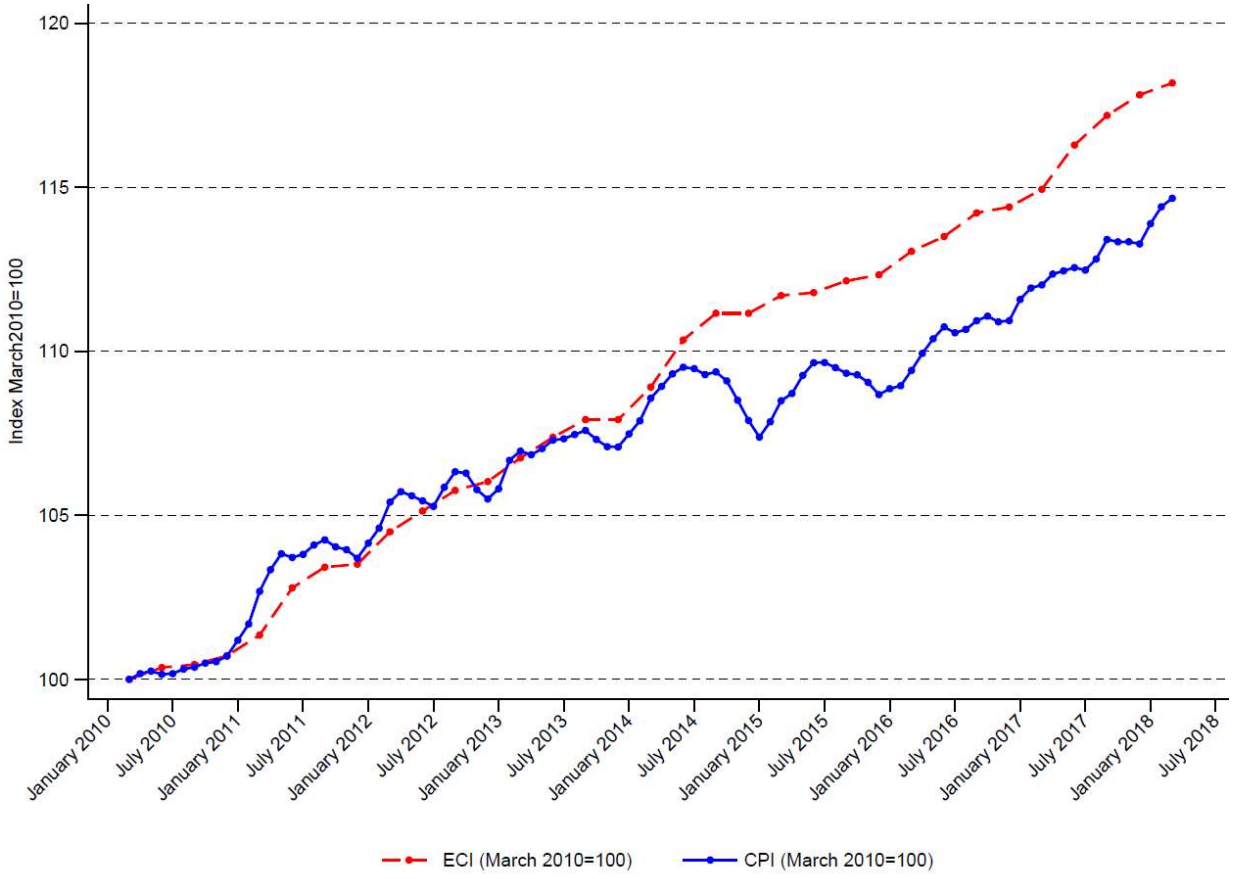
D. Comparison Between ECI and CPI

12. To compare how the ECI and CPI indexes have changed over time, I set March 2010 as the reference date. That is, I set the ECI for the occupational group "[i]nstallation, maintenance, and repair" equal to 100.0 in March 2010, and I also set the CPI equal to 100.0 in March 2010. As shown in Figure 1, the ECI increased more rapidly than the CPI over the period March 2010 to March 2018. Figure 2 shows the same data, but with the vertical axis beginning at zero, rather than at 100 as in Figure 1.

[12] United States Department of Labor, Bureau of Labor Statistics, "Consumer Price Index Frequently Asked Questions," available at https://www.bls.gov/cpi/questions-and-answers.htm.

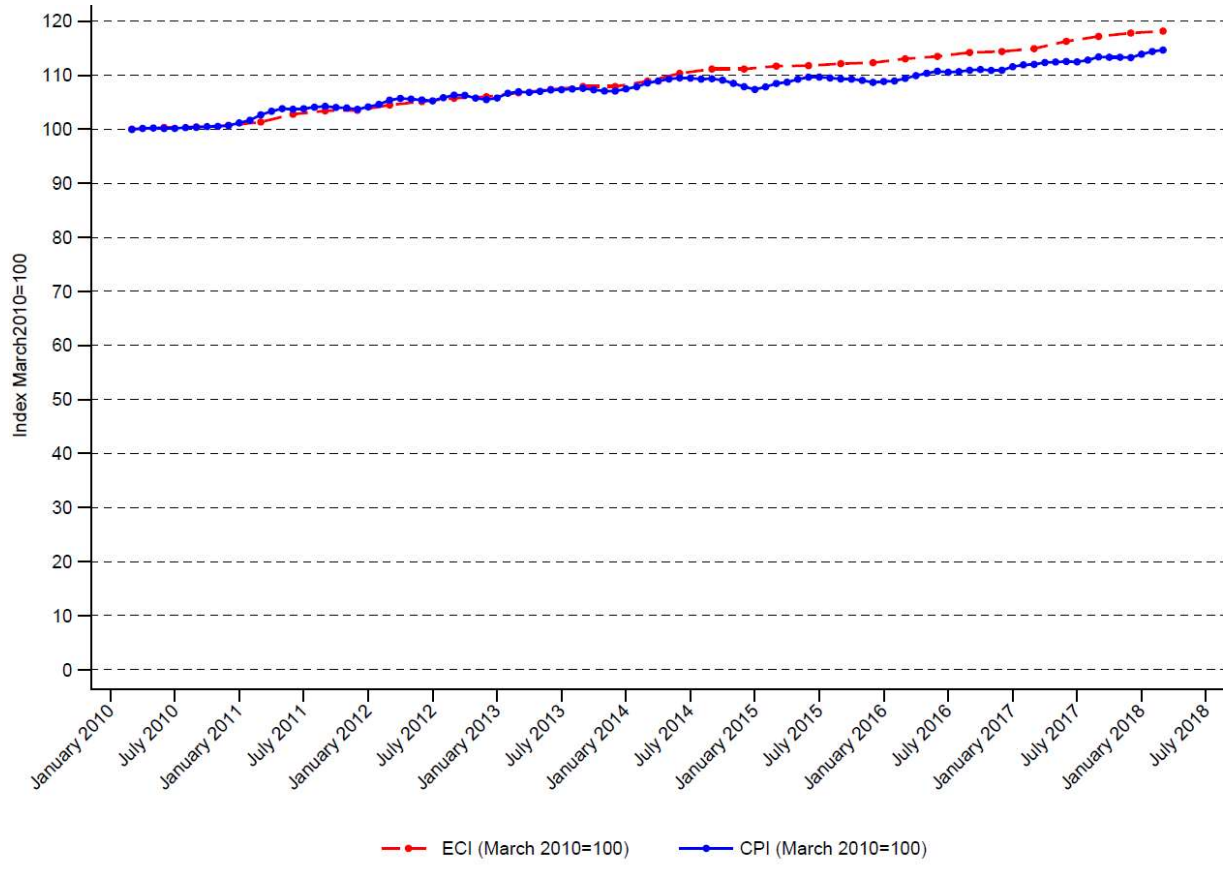
[13] United States Department of Labor, Bureau of Labor Statistics, "National Compensation Measures: Collections & Data Sources," available at https://www.bls.gov/opub/hom/ncs/data.htm.

FIGURE 1
ECI VS CPI
FROM MARCH 2010 TO MARCH 2018



Sources: "Employment Cost Index Historical Listing – Volume III," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/echistrynaics.pdf, at p. 71; United States of Labor, Bureau of Labor Statistics, "Historical CPI-U for May 2018," available at https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-201805.pdf.

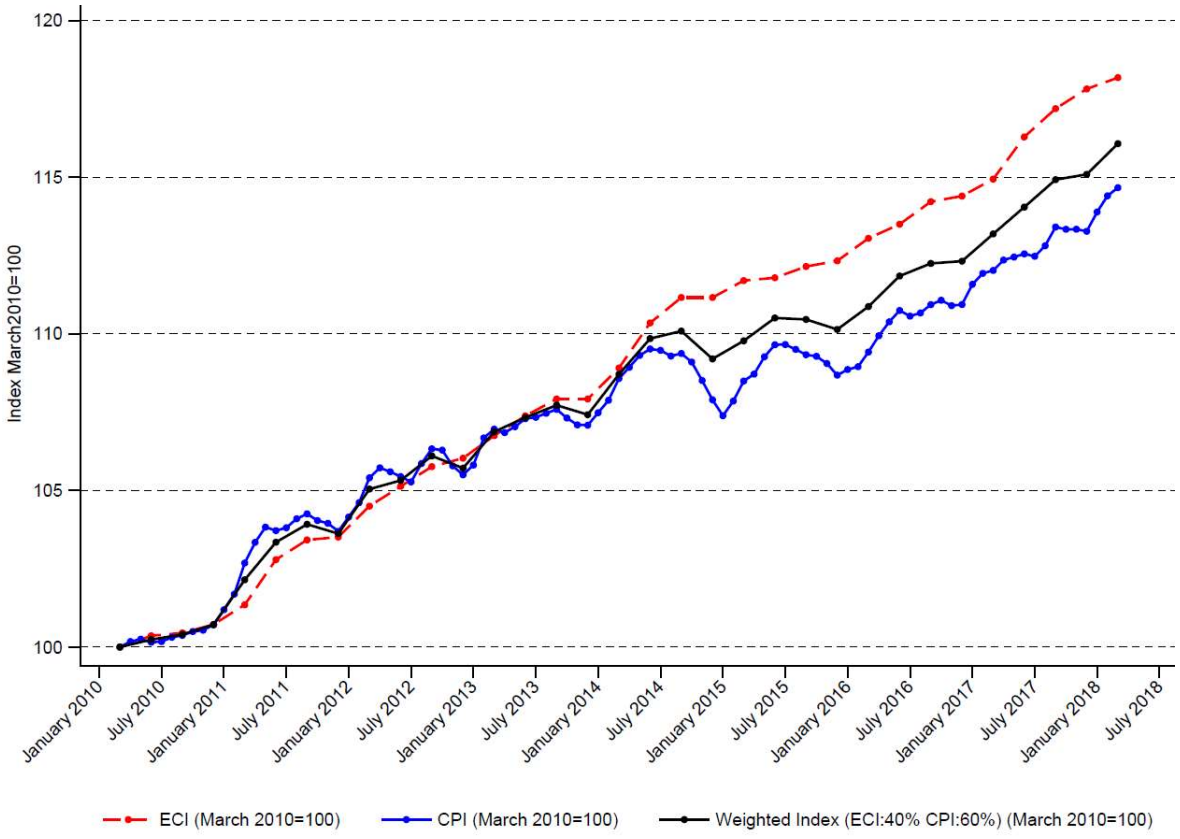
FIGURE 2
ECI VS CPI
FROM MARCH 2010 TO MARCH 2018



Sources: "Employment Cost Index Historical Listing – Volume III," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/echistrynaics.pdf, at p. 71; United States of Labor, Bureau of Labor Statistics, "Historical CPI-U for May 2018," available at https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-201805.pdf.

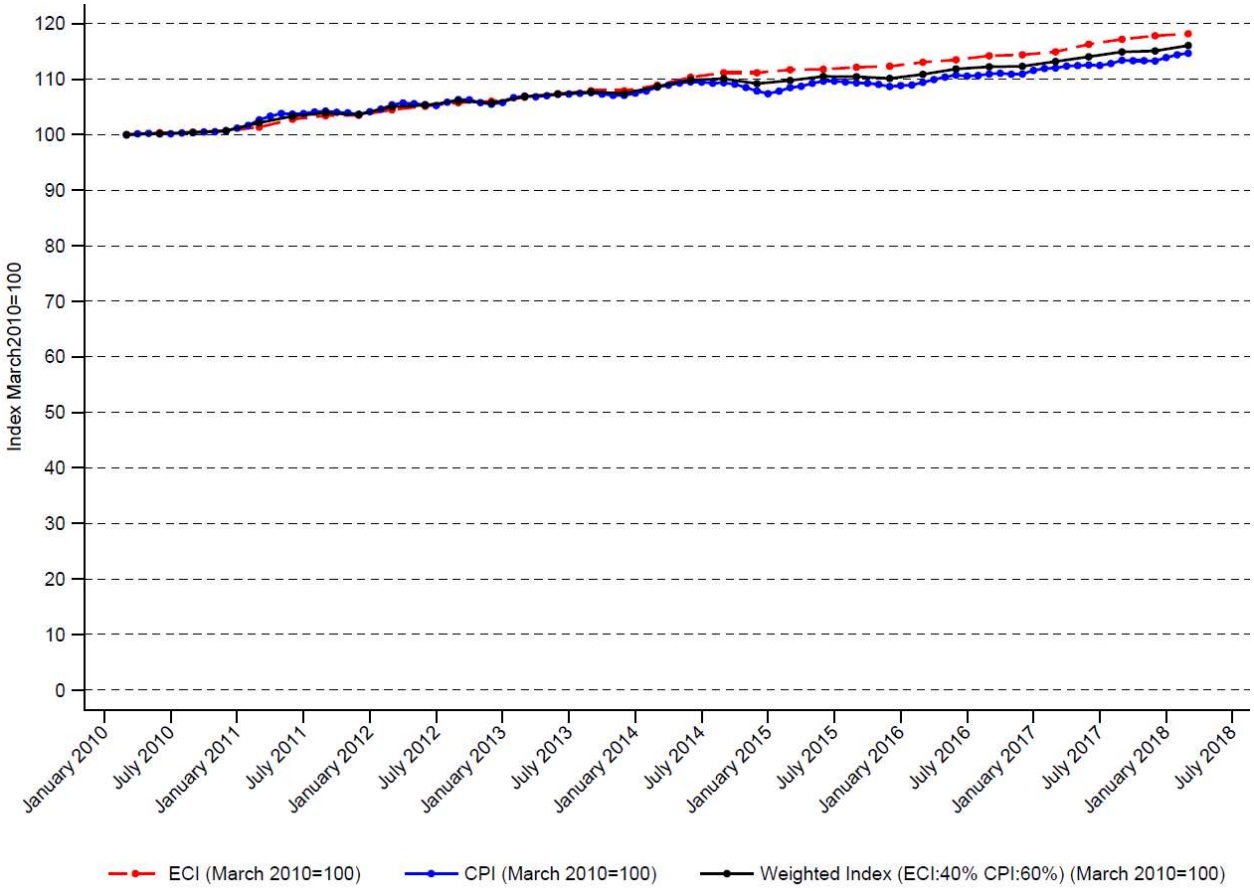
13. Figures 3 and 4 present a comparison of the adjusted ECI, the adjusted CPI, and a "Weighted Index" from 2010 to the present. The Weighted Index is the sum of 40% of the value of the adjusted ECI and 60% of the value of the adjusted CPI. For example, the Weighted Index for March 2018 equals 40% * 118.182 (value of the adjusted ECI) + 60% * 114.668 (value of the adjusted CPI) = 116.074. The difference between Figures 3 and 4 is that in Figure 3, the vertical axis begins at 100, while in Figure 4, the vertical axis begins at zero.

FIGURE 3
ECI VS CPI VS WEIGHTED INDEX
FROM MARCH 2010 TO MARCH 2018



Sources: "Employment Cost Index Historical Listing – Volume III," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/echistrynaics.pdf, at p. 71; United States of Labor, Bureau of Labor Statistics, "Historical CPI-U for May 2018," available at https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-201805.pdf.

FIGURE 4
ECI VS CPI VS WEIGHTED INDEX
FROM MARCH 2010 TO MARCH 2018



Sources: "Employment Cost Index Historical Listing – Volume III," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/echistrynaics.pdf, at p. 71; United States of Labor, Bureau of Labor Statistics, "Historical CPI-U for May 2018," available at https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-201805.pdf.

E. ECI Datasets

14. There are two types of ECI datasets: the North American Industry Classification System ("NAICS") and the Standard Industrial Classification ("SIC"),[14] which was replaced by NAICS in March 2006.[15] The NAICS datasets should be used in establishing a USF budget.

15. There are three volumes of NAICS-based ECIs:

- Volume III.[16] Current Dollar, March 2001 – current reference period;
- Volume IV.[17] Constant Dollar, March 2001 – current reference period; and
- Volume V.[18] Continuous Occupational and Industry Series, September 1975 – current reference period.

[14] "Employment Cost Index Historical Listing – Volume IV," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/ecconstnaics.pdf, at p. 1.

[15] "Employment Cost Index Historical Listing – Volume IV," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/ecconstnaics.pdf, at p. 2.

"The NAICS Code was developed to eliminate the inconsistent logic utilized in the SIC system and to increase specificity from the 4 digit SIC system by creating a 6 digit NAICS code." See Baker, J. (2017), "What Exactly Are NAICS & SIC Codes?" NAICS Association, available at https://www.naics.com/what-is-the-difference-between-naics-codes-and-sic-codes/.

[16] "Employment Cost Index Historical Listing – Volume III," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/echistrynaics.pdf.

[17] "Employment Cost Index Historical Listing – Volume IV," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/ecconstnaics.pdf.

[18] "Employment Cost Index Historical Listing – Volume V," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/ecicois.pdf.

16. I recommend using Volume III for NTCA's purposes, as the data is (a) available from March 2001 to March 2018[19] and (b) is unadjusted for inflation.[20] I do not suggest using Volume IV because the ECI for Volume IV is already adjusted for inflation,[21] while the goal is to identify an inflationary factor that better captures changes in nominal, i.e., not inflation adjusted, labor costs. I do not suggest using Volume V because (a) it does not contain details for the specific occupational groups relevant to NTCA[22] and (b) it is limited to several not-seasonally adjusted tables that have industry and occupational series that are continuous between the former industry and occupational classification systems and the current classification systems.[23]

[19] Please note that the estimates from 2001 to 2005 for both Volume III and Volume IV are unofficial. "Employment Cost Index Historical Listing – Volume III," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/echistrynaics.pdf, at p. 1. *See also* "Employment Cost Index Historical Listing – Volume IV," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/ecconstnaics.pdf, at p. 1.

[20] Volume III is in current dollar terms. "Current dollars is a term describing income in the year in which a person, household, or family receives it. For example, the income someone received in 1989 unadjusted for inflation is in current dollars." United States Census Bureau, available at https://www.census.gov/topics/income-poverty/income/guidance/current-vs-constant-dollars.html.

[21] Volume IV is in constant dollar terms. "Constant or real dollars are terms describing income after adjustment for inflation." United States Census Bureau, available at https://www.census.gov/topics/income-poverty/income/guidance/current-vs-constant-dollars.html.

[22] "Employment Cost Index Historical Listing – Volume V," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/ecicois.pdf.

[23] "Employment Cost Index Historical Listing – Volume V," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/ecicois.pdf, at p. 1.

17. In Volume III, there are thirteen different tables that are divided into two broad categories: seasonally adjusted and not seasonally adjusted.[24] Between these categories, I conclude that Table 5, entitled "Employment Cost Index for total compensation, for private industry workers, by occupational group and industry, Current dollars (Not seasonally adjusted)" is most applicable in the present case (see Table 1), as it includes occupational groups such as "construction" and "[i]nstallation, maintenance, and repair."[25]

[24] "Employment Cost Index Historical Listing – Volume III," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/echistrynaics.pdf, at p. 1.

[25] "Employment Cost Index Historical Listing – Volume III," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/echistrynaics.pdf, at p. 71.

TABLE 1
TABLE 5 FROM VOLUME III

Table 5. Employment Cost Index for total compensation[1], for private industry workers, by occupational group and industry — Continued

(Not seasonally adjusted)

Occupational group and industry	Indexes (Dec. 2005 = 100)				Percent changes for–							
					3-months ended–				12-months ended–			
	Mar.	June	Sep.	Dec.	Mar.	June	Sep.	Dec.	Mar.	June	Sep.	Dec.
Construction, extraction, farming, fishing, and forestry												
2001	84.2	85.1	86.2	86.4	1.2	1.1	1.3	.2	5.2	4.7	4.4	3.8
2002	87.3	88.1	88.8	89.5	1.0	.9	.8	.8	3.7	3.5	3.0	3.6
2003	90.3	91.6	92.5	93.1	.9	1.4	1.0	.6	3.4	4.0	4.2	4.0
2004	94.7	95.8	96.4	97.2	1.7	1.2	.6	.8	4.9	4.6	4.2	4.4
2005	97.7	98.7	99.5	100.0	.5	1.0	.8	.5	3.2	3.0	3.2	2.9
2006	100.7	102.2	103.1	103.7	.7	1.5	.9	.6	3.1	3.5	3.6	3.7
2007	104.4	105.7	106.5	107.4	.7	1.2	.8	.8	3.7	3.4	3.3	3.6
2008	108.6	109.7	110.3	110.8	1.1	1.0	.5	.5	4.0	3.8	3.6	3.2
2009	110.9	111.5	112.0	112.4	.1	.5	.4	.4	2.1	1.6	1.5	1.4
2010	113.1	113.6	114.3	114.4	.6	.4	.6	.1	2.0	1.9	2.1	1.8
2011	114.8	115.5	116.0	116.5	.3	.6	.4	.4	1.5	1.7	1.5	1.8
2012	116.6	117.1	117.8	117.9	.1	.4	.6	.1	1.6	1.4	1.6	1.2
2013	118.6	118.9	119.9	120.3	.6	.3	.8	.3	1.7	1.5	1.8	2.0
2014	120.7	121.4	122.1	122.9	.3	.6	.6	.7	1.8	2.1	1.8	2.2
2015	123.1	124.0	124.6	125.1	.2	.7	.5	.4	2.0	2.1	2.0	1.8
2016	125.8	127.1	127.3	128.4	.6	1.0	.2	.9	2.2	2.5	2.2	2.6
2017	129.2	130.2	131.1	131.6	.6	.8	.7	.4	2.7	2.4	3.0	2.5
2018	132.2	–	–	–	.5	–	–	–	2.3	–	–	–
Installation, maintenance, and repair												
2001	84.4	84.9	86.8	86.8	1.2	.6	2.2	.0	3.7	3.2	4.3	4.1
2002	87.4	89.1	90.0	90.1	.7	1.9	1.0	.1	3.6	4.9	3.7	3.8
2003	91.4	92.5	93.1	93.6	1.4	1.2	.6	.5	4.6	3.8	3.4	3.9
2004	95.0	96.3	96.7	97.0	1.5	1.4	.4	.3	3.9	4.1	3.9	3.6
2005	98.1	99.3	99.6	100.0	1.1	1.2	.3	.4	3.3	3.1	3.0	3.1
2006	100.9	102.1	103.0	103.4	.9	1.2	.9	.4	2.9	2.8	3.4	3.4
2007	103.5	104.1	105.2	105.8	.1	.6	1.1	.6	2.6	2.0	2.1	2.3
2008	106.3	106.6	107.4	108.1	.5	.3	.8	.7	2.7	2.4	2.1	2.2
2009	108.6	108.9	109.4	109.8	.5	.3	.5	.4	2.2	2.2	1.9	1.6
2010	111.1	111.5	111.6	111.9	1.2	.4	.1	.3	2.3	2.4	2.0	1.9
2011	112.6	114.2	114.9	115.0	.6	1.4	.6	.1	1.4	2.4	3.0	2.8
2012	116.1	116.8	117.5	117.8	1.0	.6	.6	.3	3.1	2.3	2.3	2.4
2013	118.6	119.3	119.9	119.9	.7	.6	.5	.0	2.2	2.1	2.0	1.8
2014	121.0	122.6	123.5	123.5	.9	1.3	.7	.0	2.0	2.8	3.0	3.0
2015	124.1	124.2	124.6	124.8	.5	.1	.3	.2	2.6	1.3	.9	1.1
2016	125.6	126.1	126.9	127.1	.6	.4	.6	.2	1.2	1.5	1.8	1.8
2017	127.7	129.2	130.2	130.9	.5	1.2	.8	.5	1.7	2.5	2.6	3.0
2018	131.3	–	–	–	.3	–	–	–	2.8	–	–	–

Source: "Employment Cost Index Historical Listing – Volume III," Bureau of Labor Statistics, National Compensation Survey (2018), available at https://www.bls.gov/web/eci/echistrynaics.pdf, at p. 71.

III CONCLUSIONS

18. To achieve the statutory objectives to provide universal broadband access, the current USF budget should be updated to include an appropriate inflationary factor in calculating the broadband subsidy. As labor costs represent the largest cost input to deploy and maintain broadband access in rural areas, the Employment Cost Index ("ECI") is a more appropriate measure of inflation than the Consumer Price Index (CPI). I recommend using the ECI series for the occupational group "[i]nstallation, maintenance and repair" be used as the inflationary factor in establishing a USF budget.

APPENDIX I: RESUME

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I am a Director at Competition Economics, LLC. I specialize in analyses involving antitrust, industrial organization, and regulation. I have published articles in a number of academic journals, including the *Proceedings of the National Academy of Sciences, American Economic Review, Journal of Industrial Economics, International Journal of Industrial Organization, Journal of Law and Economics, American Law and Economics Review, Journal of Economics and Management Strategy, Review of Industrial Organization, Journal of Institutional and Theoretical Economics, Economics Letters, Journal of Public Economic Theory, Behavioral Science, Antitrust Bulletin, Physica A, Texas Law Review,* and *Yale Journal on Regulation.*

I have provided written and/or oral testimony before:

- United States District Court, Middle District of Alabama
- United States District Court, Western District of Arkansas
- United States District Court, Central and Northern Districts of California
- United States District Court, District of Delaware
- United States District Court, Middle District of Florida
- United States District Court, Northern District of Georgia
- United States District Court, Eastern Division, District of Idaho
- United States District Court, Southern District of Illinois
- United States District Court, District of Kansas
- United States District Court, District of Massachusetts
- United States District Court, District of Minnesota
- United States District Court, District of New Jersey
- United States District Court, Southern District of New York
- United States District Court, Eastern District of Pennsylvania
- United States District Court, Eastern District of Tennessee

- United States District Court, Northern and Southern Districts of Texas
- United States Court of Federal Claims
- State of Connecticut, Superior Court
- State of New Mexico, Second Judicial District
- State of Nevada, Gaming Commission and State Gaming Control Board
- Public utilities commissions: Arkansas, Hawaii, Michigan, Minnesota, Missouri, Nebraska, New Mexico, Texas, and Washington

I have been retained as an economic consultant by the U.S. Department of Justice, Antitrust Division, the U.S. Federal Trade Commission, and the Canadian Competition Bureau.

Previously, I was an economist with the U.S. Department of Justice, Antitrust Division. I hold a B.A. degree in economics from the University of California, Santa Barbara, and I receive my M.A. and Ph.D. degrees in economics from the University of Chicago.

TESTIMONY AND EXPERT REPORTS (PAST FOUR YEARS)

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Expert reports and depositions regarding class certification and damages (filed under seal), 2017-2018.

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In Re: Global Tel*Link Corporation Litigation
Expert reports regarding plaintiffs' claims (filed under seal), 2017.

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General Electric Company's acquisition of RCA.

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Norfolk Southern, Inc.'s acquisition of North American Van Lines.

Cooper Industries, Inc.'s acquisition of Westinghouse Electric, Corp.'s Lighting Fixture Business.

Southwestern Public Service Company's acquisition of New Mexico Electric Service Company.

ITT-Continental Baking Company's acquisition of Bost Bakery, Inc.

Williams Companies' acquisition of Northwest Energy, Corp.

Archer-Daniel-Midland's acquisition of Gold Kist's Valdosta, Georgia soybean processing plant.

PRICE FIXING

United States of America v. Weeks Marine, Inc.

CONSENT DECREES

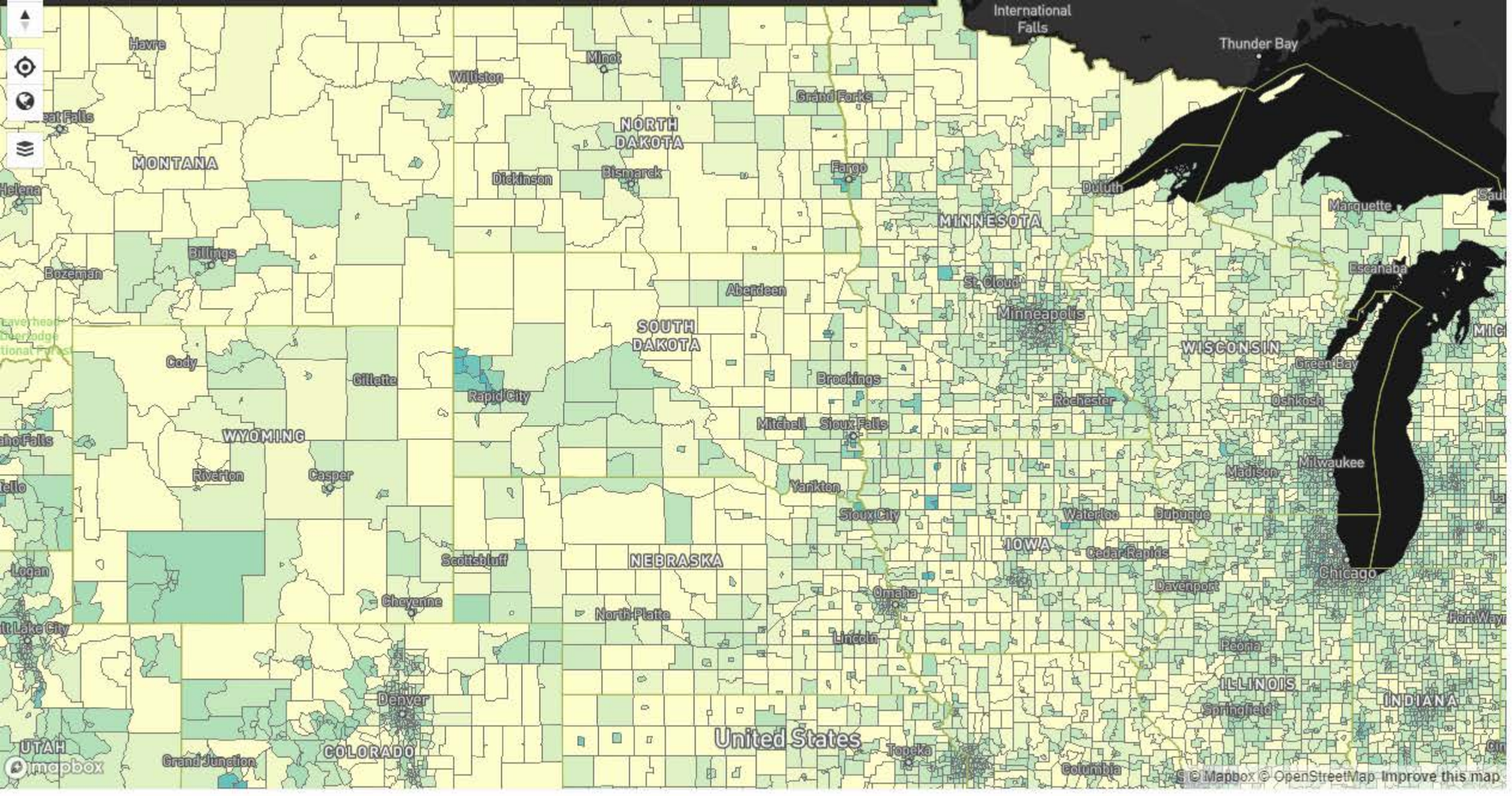
United States of America v. Wallpaper Institute

United States of America v. Greyhound, Corp.

United States of America v. Balley Manufacturing, Corp.

ATTACHMENT 2

PORTION OF FCC FORM 477 INTERACTIVE MAP
DEPICTING CABLE BROADBAND COVERAGE ≥ 10/1 Mbps
(captured as of June 8, 2018 from https://broadbandmap.fcc.gov/#/)



Number of Fixed Residential Broadband Providers

0 1 2 3 4 6 12 or more

Broadband

Technology	Cable
Speed	≥ 10/1 Mbps
Date	December 2016 *(latest public release)*